PAPER TRADE
JOURNAL

Wet Strength Papers Open New Vistas . . . p. 14

June 26, 1953

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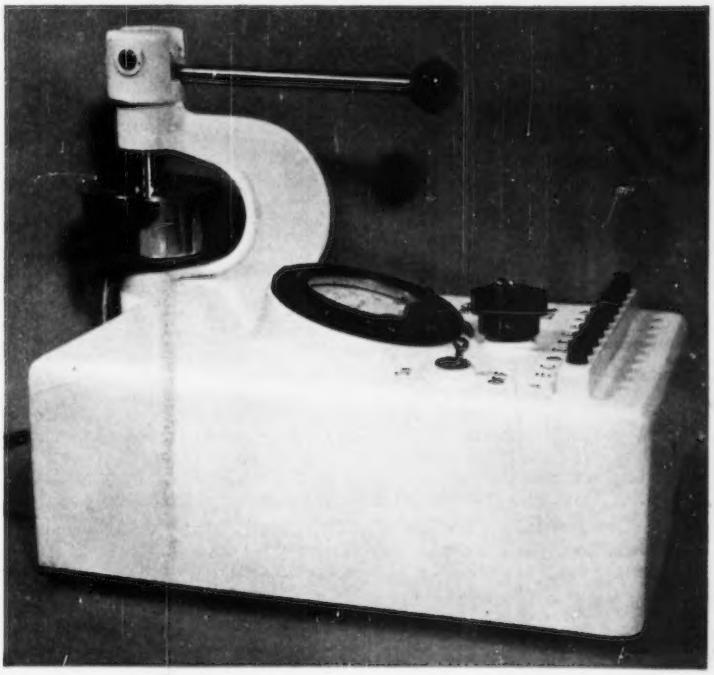
Available with electrodes for accurately gauging boards or papers stacked in a pile and without disturbing the stack in any way. Measurement from a spot ***deeply within the stack,*** approaching a penetration of two feet.

Each instrument is custom built to meet exactly the requirements of each individual application. Ask us to lend you a meter calibrated for your material.



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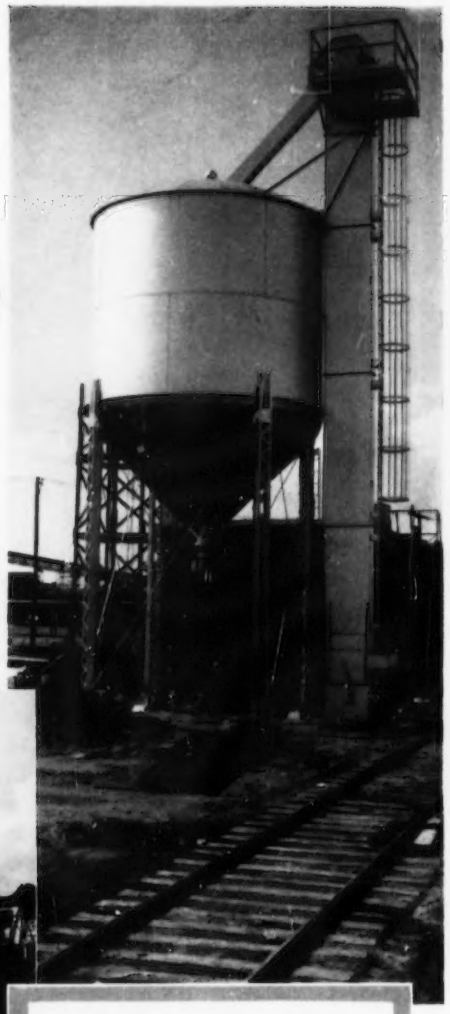

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Los Angeles, 17..1561 General Petroleum Building
New York 6.....3333—165 Broadway Building
Philadelphia 3 1665—1700 Walnut Street Building
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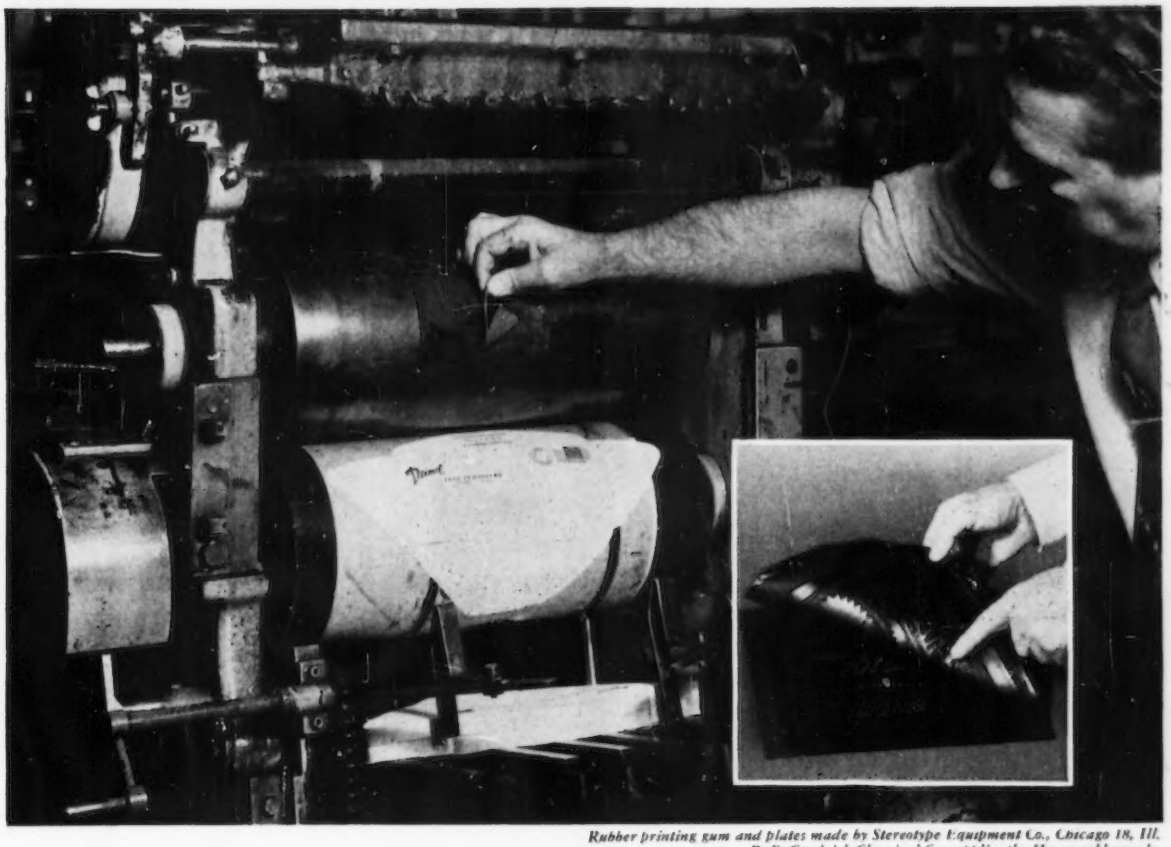

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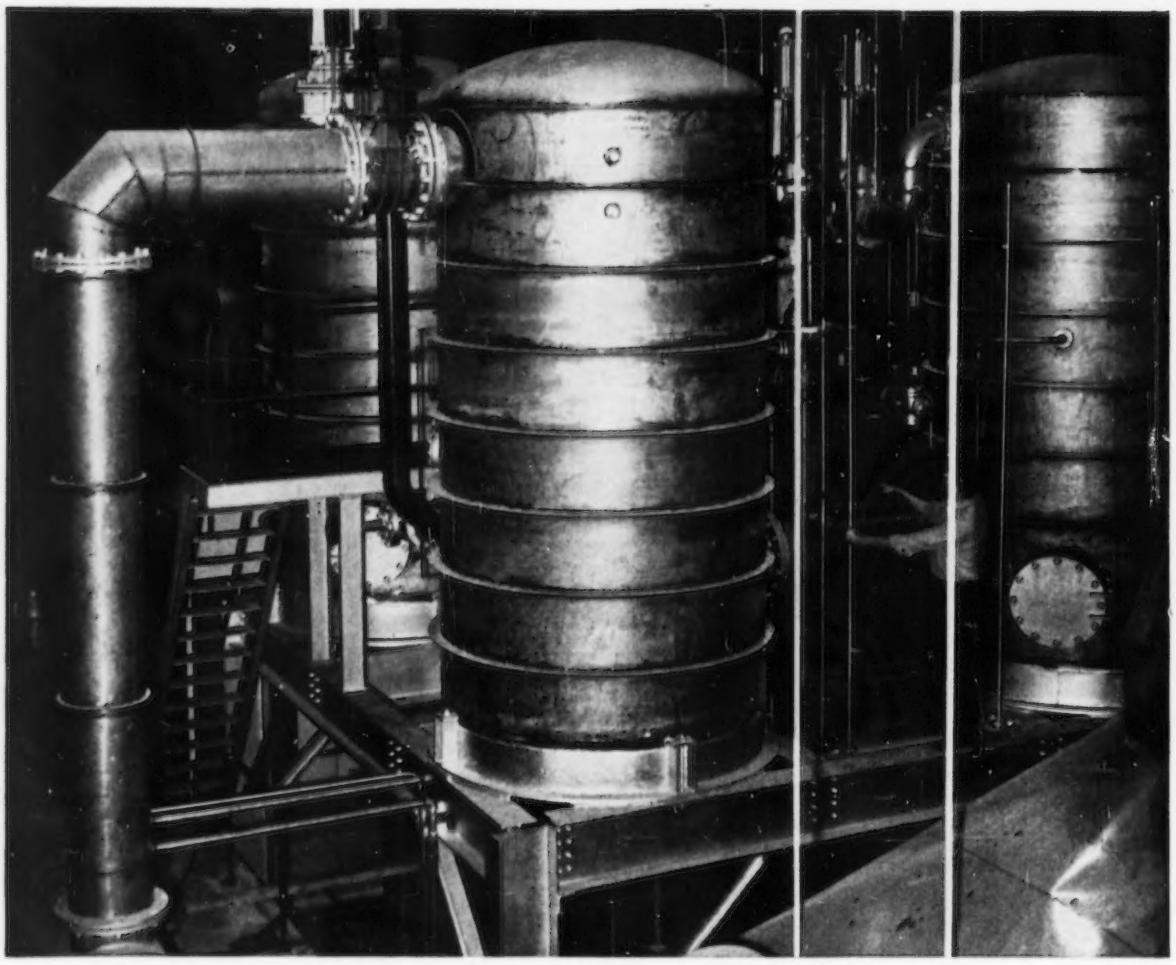

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REMEMBER THESE DATES

OCT. 6-7: Fibrebox Assn., Fall Meeting, Waldorf-Astoria Hotel, New York, N.Y.

OCT. 8-9: Tenth Fibrous Agricultural Residues Conference, Trenton, Ont., Canada.

OCT. 15-16: Third Corrugated Containers Conference, Statler Hotel, New York, N.Y.

OCT. 26-29: TAPPI Engineering Division, Sheraton-Mount Royal Hotel, Montreal, Que., Canada.

NOV. 4-5-6: National Paperboard Assn., Annual Meeting, Waldorf-Astoria Hotel, New York, N.Y.

NOV. 18-20: 7th TAPPI Alkali Pulping Conference, Rice Hotel, Houston, Texas.

DEC. 13-16: American Institute of Chemical Engineers, Annual Meeting, Hotel Jefferson, St. Louis, Mo.

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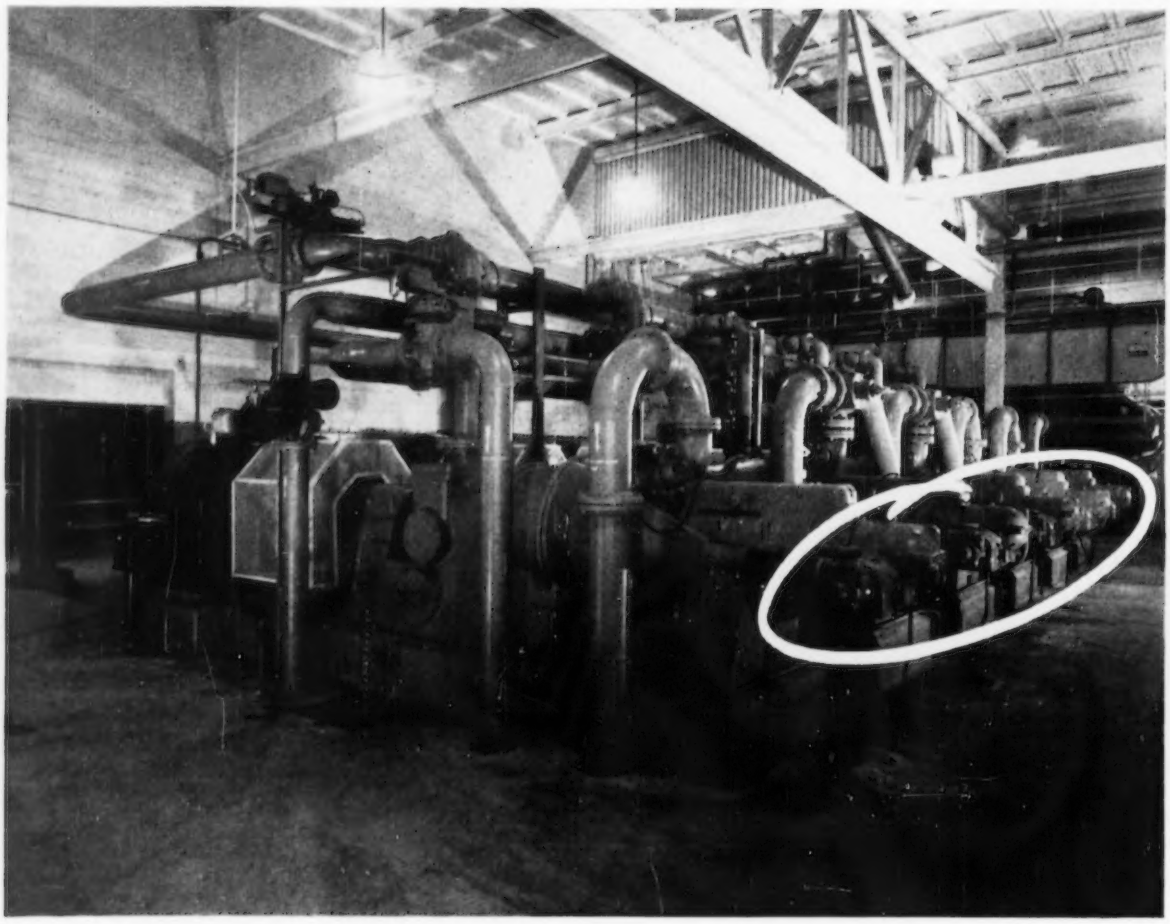

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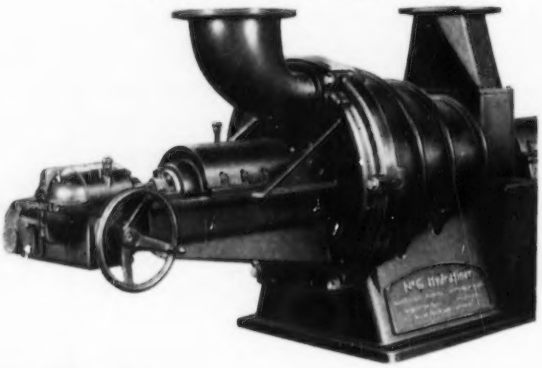

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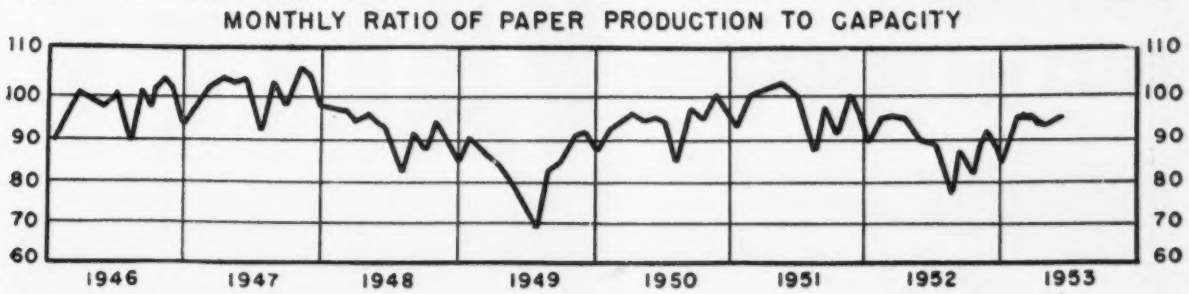
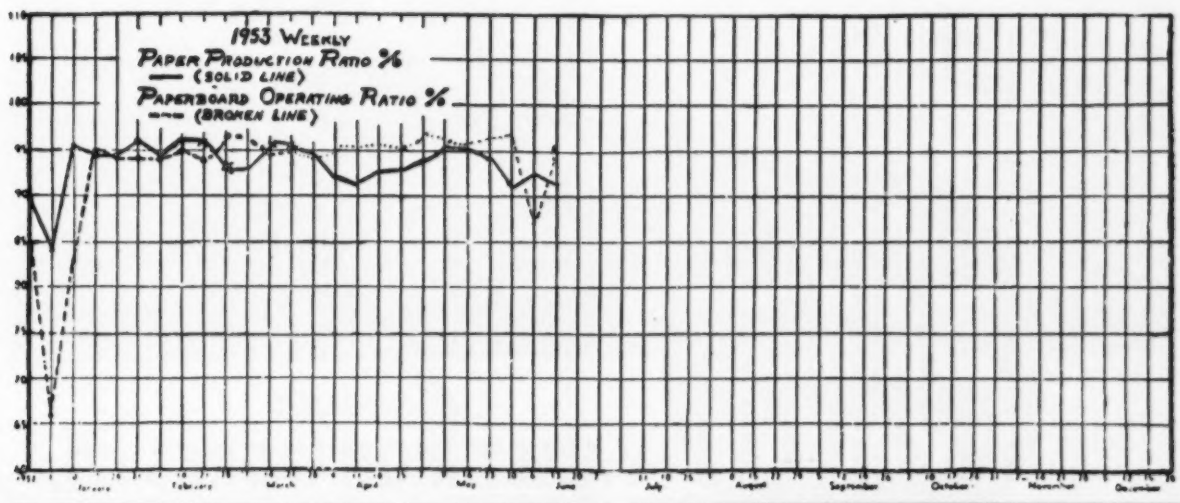
OUR BUSINESS



Brief of Important Figures

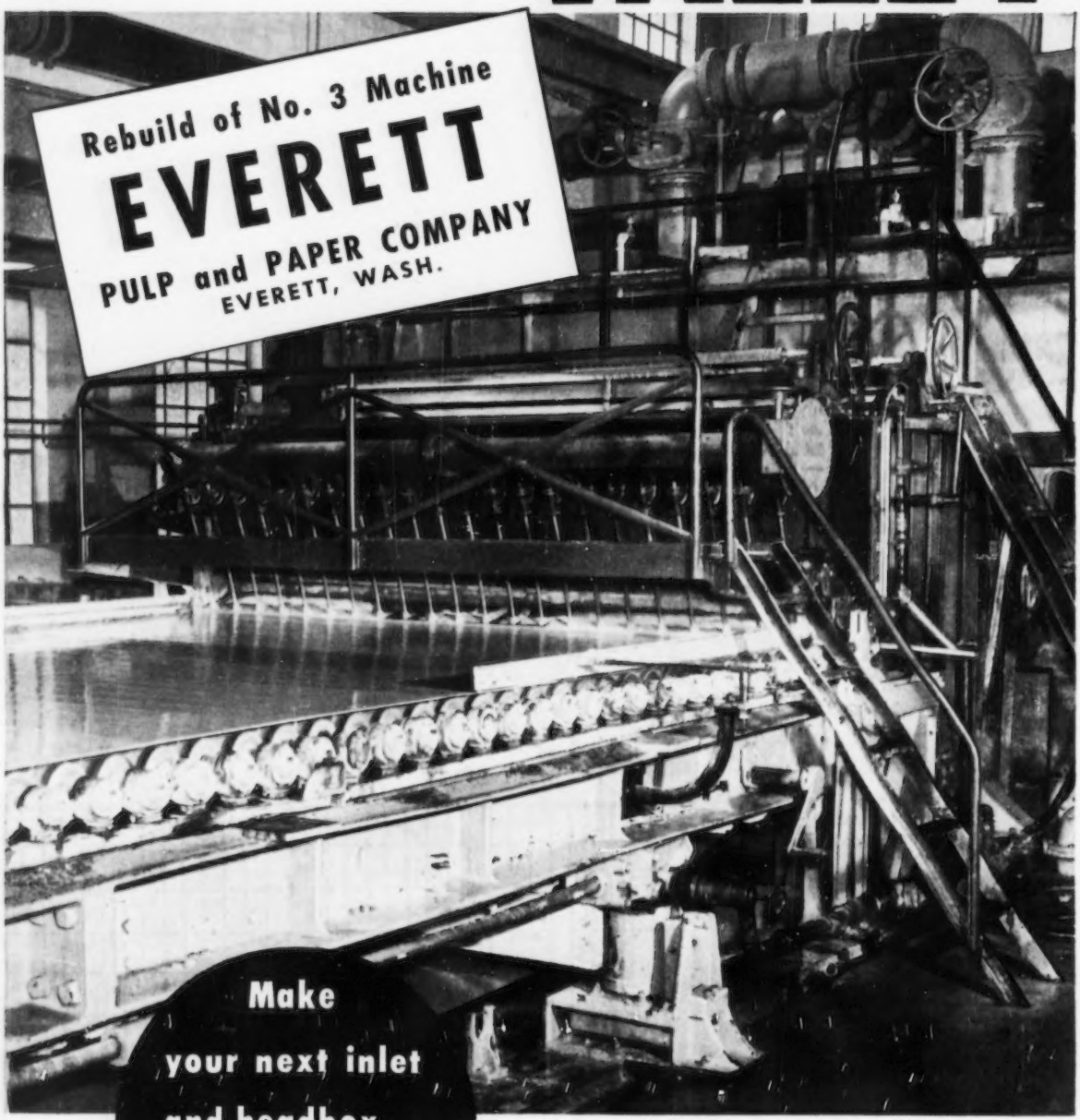
Source	Production	WEEK ENDING June 13, '53	May 16, '53	June 14, '52
APPA	Paper Production Percent Capacity[3]	93.8	95.3	88.5
NPA	Paperboard Operating Ratio Percent Inch Hours	98	96	86
		Apr. 1953	**Mar. 1953x**	**Apr. 1952**
APPA	Paper Production[6] (Except Newsprint and Building Papers) ....Tons	872,000	882,601	853,000
	New Orders ....Tons	859,000	920,783	797,000
	Unfilled Orders ....Tons	854,225	865,259	812,806
	Shipments ....Tons	870,000	876,332	844,000
		May 1953	**Apr. 1953**	**May 1952**
NPA	Paperboard Production ....Tons	988,393	988,205	806,196
	New Orders ....Tons	926,251	972,711	751,565
	Unfilled Orders ....Tons	459,811	539,033	379,989
	Our Customers Activities Index[1]	**Latest Mo.°**	**Previous Mo.°**	**Year Ago°**
FRS	Durable Mfg. Index	325	319	283
	Nondurable Mfg. Index	196	194	184
	Printing and Publishing Index	185	178	180
ODC	Magazine Advg.-Printer's Ink Index	421	411	371
	Prices Index			
BLS	Consumers Price Index[4]	113.6	113.4	112.4
	Wholesale all Commodities[4]	110.1	109.6	112.3
	Wholesale Pulp, Paper[4] and Allied Products	115.2	115.3	117.7
	Purchasing Power of Dollar, Consumers Prices[4]	87.9	88.1	88.9
	General Activity Index			
FRS	Mfg. Production-Worker Payroll[4]	147.5	147.5	131.9
	Unemployment Compensation Initial Claims (M)	831	761	867



[1] New 6-7 day basis.
[4] New Index 1947–1949 = 100.

° For details see APPA Monthly Statistical Summary—April 1953 Estimated Figures.
° Latest Month Available on Request.
x Revised Figures. N.A.: Not Available.

ANOTHER INLET and HEADBOX by VALLEY



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TRENDS

PAPER TRADE JOURNAL

Book Paper Mills Look For Good Business to Continue

No letdown from the current high level of demand for *book* and printing papers is expected by the industry's *book* mills during the usually quiet summer. Stepped-up advertising is scheduled for all types of consumer durables now cramming the nation's warehouses; and magazine color jobs and other printed matter rank well up on the advertising budgets.

Pointing to increased GPO and A-N buying and to these printing requirements, mill representatives say the orders are coming in so fast that they can't take care of them as fast as required. From five to six weeks behind a month ago, they are unable to make delivery before August or September. Several are on allotments based on consumer buying during 1952. Machine-, brush-, and converter coated mills alike are very busy. Offsets, uncoateds, and bonds are more readily obtained.

Grist from NAPA report .....

on book paper, as summarized by Paul B. Scott of the Kingsport Press, Kingsport, Tenn., is that the book mills should continue busy for the balance of the year. "In many cases," says Mr. Scott, "it is necessary to place orders 60 to 90 days ahead so that delivery can be made when wanted. . . . Backlog of orders appears to be larger than ever, and customers are looking ahead and placing orders in advance."

Reporting for NAPA on fine papers, W. H. Cauldwell, Brown & Bigelow, St. Paul, Minn., wrote that the supply of fine paper in merchants' warehouses and in the hands of the printers is considerably higher than a year ago. Most of the mills, Mr. Cauldwell said, had backlogs of from 12 to 24 days. "However the prediction for the third quarter does not seem to be as strong," he said.

Talk of a possible rise in price during the third-quarter also was reported by that writer, with the comment that "as long as the supply status stands in the easy category, there is no inclination on the part of consumers to stockpile — which should have a tendency to stabilize the market." This, to Mr. Cauldwell, would seem to indicate that competition will stay keen and, on a long-range basis, probably will hold true for the next six months.

N. Y. Wholesalers Find Book Demand Dull

New York dealers in book and printing papers are unable to share the enthusiasm of mill men for market demand. Business to the several interviewed last week is dull in fine papers as well as in *book*, and has been so for many weeks.

Looked for is some explanation as to why their volume is so low on the very grades on which the mills are busiest. They know that mill schedules on coated papers now average eight to ten weeks at best. Their accounts are getting anxious about their inventory position. And their conclusions are that large printers are either buying direct in increasing volume or through brokers.

A pickup in wholesaler volume is hoped for after vacations and stock-taking at printing establishments.

Higher Prices Seen For Enamels and Other Coateds

In view of current market strength for coated stock of all types, it now appears likely that price rises to cover increases in labor, freight and chemical costs can be looked for.

Seen as harbingers of a developing trend are a few advances announced to be immediately effective and which are explained by rising production costs.

Partial N.Y. market research includes a $5.00 per ton rise in machine-coated book and other coated printing papers, product of a midwest mill. In another instance, some grades are advanced $5, others $8. Published pricelist of one mill indicates an immediate increase on enamels which ranges from $5 to $15 a ton; on coated printed papers from $8 to $13; on uncoated printing papers, $4 a ton.

No change in uncoated text .....

has been reported. One rise in uncoated offset has just come through, and one in sulphite bonds is said to be a matter of time.

Price-cutting in Rag Contents Revealed Here

In what is reported as a senseless bid for market position, several rag-content mills are substituting price-cutting for good distribution policies, it is said here. All grades of rag-contents are hit in this area.

Brush-Coated Enamels Enjoying A Revival of Demand

A revival of demand for brush-coated enamels of the No. 1 and No. 2 grades is widely reported in this area. Distributors and wholesalers alike tell of special color advertising jobs for which their customers specify the top grades of brush-coateds. Producing mills are operating at high volume, and a firming of price is not out of reason.

—E.P.N.

GPO Proposal Shows Small Variation for New Quarter

Government Printing Office bids for the year's third quarter are compared against advertised proposal for the same quarter of 1952, with the 1952 grand total of 32,820 thousands pounds some 1,155 short tons ahead of requirements for this year. (See Table for grade-by-grade variations and Page 33.)

Estimated GPO Paper Supplies Three Months, July 1, 1953 vs 1952

Approximate estimated quantities as set down in advertised proposals of the Government Printing Office for the third quarter of 1953 are compared with those quantities covered in the same quarter of 1952.

July 1 1953	July 1 1952	
Thousand Pounds		
1,240	850	newsprint paper
1,535	1,790	machine finish book
85	175	English finish book
25	20	m.f. book end
5,855	5,300	offset bok
205	205	antique book
	120	50% antique book
375	300	water-resistant book
585	660	super-calendered book
1,793	2,122	coated book
825	1,090	mimeo
365	230	duplicator copy
7,055	8,660	writing paper
612	1,157	map paper
385	25	manifold
1,567	2,591	bond paper
669	585	ledger paper
780	455	index
225	272	cover
5	5	cloth-lined cover
225	126	manila
205	521	kraft
320	400	sheets gummed paper
10	40	blotting
5	6	wallet board
65	110	tag board
45	95	railroad board
	25	white l.c. board
10	20	manila cardboard
225	290	wood cardboard
150	200	tan board
4,585	3,580	postal coard paper
25	10	folding bristol
30	71	sheets pressboard
225	275	newsboard
100	270	bindersboard
100	270	chestnut coverboard
30,511	32,820	thousand pounds

Paperboard Production (Tons)*

	June 13 1953	June 6 1953	June 14 1952
Production	254,689	233,423	208,998
New Orders	217,725	382,192	192,889
Unfilled Orders	560,897	596,571	393,144
% of Activity	98	87	86

* Source: National Paperboard Assn.

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WEEK OF PAPER TRADE JOURNAL JUNE 26, 1953

New Pulp Mill Under Construction in Arizona

The Coconino Pulp & Paper Co. is soon to begin operations as a pulp producer in a remodeled slaughterhouse about one mile east of Flagstaff, Arizona. James M. Potter, president of the new company, hopes to begin production by mid-August.

At the outset, the mill will produce about 25 tons per day of wet lap pulp for west coast markets. Pulpwood for the operation will be jack pine marked out for thinning by the Arizona Forest Service. First cutting is expected to be made in the Fort Valley Experiment Station area northwest of Flagstaff.

The mill will use an estimated 35,000 gallons of water per day, much of which will be recovered and recirculated. Mr. Potter has stated that he hopes to furnish employment for about 30 workers.

The company was incorporated in October 1952 with a capitalization of $300,000. Its statement of purpose declares that it was formed to "operate pulp mills, paper processing plants, and newsprint manufacturing plants." Potter has said that for the present the mill will make only pulp.

Other officers of the corporation are A. Stoval, chairman of the board, and A. R. Burton, secretary-treasurer. The first carload of machinery for the mill arrived the first of June. Meanwhile, the remodeling of the plant and the building of a small addition has progressed rapidly.

In addition to thinnings from the pine forests, the mill make use of a certain amount of trimmings from the local sawmills.

Consolidated Wins Federal Suit

The Consolidated Water Power and Paper Co., Wisconsin Rapids, Wis., has been given a favorable verdict by the U. S. Circuit Court of Appeals in a case involving efforts by the federal government to obtain forfeiture of $35,000 worth of pulpwood belonging to the firm.

The government had charged that a tug owned by a Canadian subsidiary of the firm had transported 2,100 cords of pulpwood across Lake Superior to Ashland, Wis., in violation of maritime laws. Consolidated, however, claimed that its own tug did the transporting and the the Canadian tug was used only for handling the cargo from the booms. The ruling in favor of Consolidated upheld an earlier decision by the District Court at Wausau, Wis.

New Board Mill in Metuchen, N. J.

Brief details have been received that board production will begin in a few months in a new plant in Metuchen, N. J. The operation is under the direction of Rocco Trezza of the Orange Paper Stock Co., Orange, N. J.

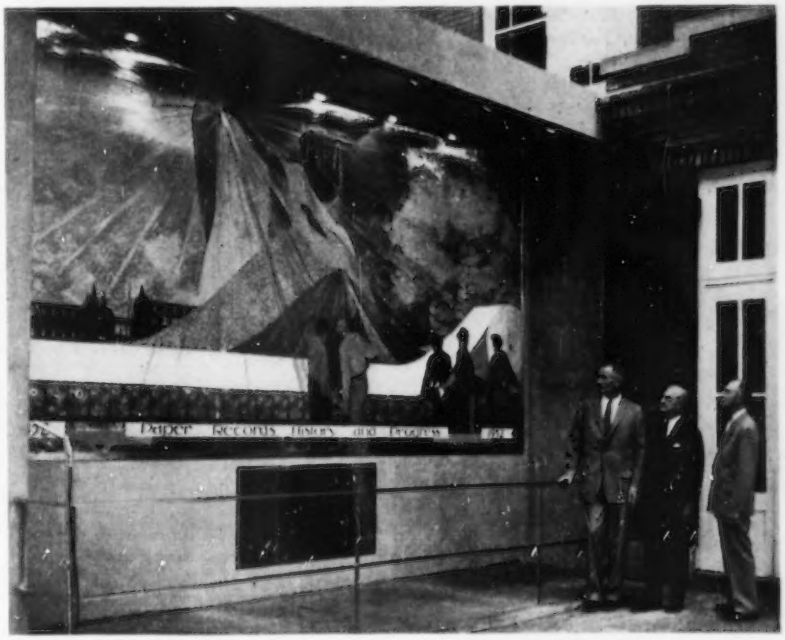
Mr. Trezza and company are reported to have purchased the six-cylinder board machine and other equipment of the former Albia Box & Paper Co., Troy, N. Y. This machinery was originally acquired by J. J. Ross Co. last April when the Albia Box company was purchased by the New York Fibre Corp.

Westminster Installs New Machine

Westminster Paper Co. Ltd. has completed the installation of a new paper machine which will increase the output of household paper products by 50 percent at its plant at New Westminster, B. C. Three generations of the Herb family, founder of the plant, were present for the unveiling ceremony, these being Elmer Herb, his father J. J. Herb, who is chairman of the board, and J. J. Herb Jr.

Rayonier Offers New Scholarships

The University of Washington in Seattle announces that Rayonier, Inc. has established a $2,500 graduate fellowship and a $1,000 Rayonier Foundation undergraduate scholarship, both of which will be made available to students in the U. of W. College of Engineering.



100th Birthday Gift to Sorg—This stainless steel mural was recently presented to the Sorg Paper Co., Middletown, Ohio, by Armco Steel Corp. It flanks the entrance to the Sorg administration building. The mural, first of its kind to be created for outdoors, commemorates Sorg's 100th year of business. Inspecting the gift are D. D. Driscoll, president of Sorg; Charles R. Hook, chairman of Armco; and W. W. Sebald, Armco president.

National Container Celebrates 25th Year—Presentation of scrolls to National Container Corp. President Samuel Kipnis and Chairman of the Board Harry Ginsberg at dinner in New York marking the twenty-fifth anniversary of corporation's founding. Directors of the corporation pictured here are (L. to R.) C. G. McLaren, Alexander C. Herman, William T. Webster, Marshall M. Bernstein, Joseph W. Quarte, Samuel Kipnis, Albert H. Edwards, Lester R. Edwards, George J. Schneider, Harry Ginsberg, Jerome L. Kipnis, Lionel M. Goldberg and William F. Young.

Japanese Alaskan Mission Reports

Recommendation that Japanese interests establish a lumber and pulp mill in Alaska has just been made by the seven-man mission of Japanese forestry experts that visited Alaska last winter. This information was received by Ralph Browne, assistant manager of the Alaska Development Board in Anchorage, in a letter from Takuji Oshima, executive director for the Japanese Council for Integrated Counter-Measures for Forest Resources.

"We have finished the report on our Alaska inspection to the effect that Japan should start establishing lumber and pulp mill as soon as possible," Oshima wrote. "Now we are making an integral project which will be tendered for study to the industrial interests and government officials concerned."

Forest Service officials have tentatively approved such a plan, allowing Japanese capital to be used, but providing for the formation of the company by American principals and the use of American labor.

Inlander-Steindler Buys Peltz-Kaufer

Inlander-Steindler Paper Co., Chicago, has purchased the sixty-nine year old business of Peltz-Kaufer Paper Co., South Bend, Ind.

The Peltz-Kaufer Co., with its same sales personnel, will be operated at its present South Bend address as the Peltz-Kaufer Division of Inlander-Steindler Paper Co. The lines heretofore carried by Peltz-Kaufer will be augmented by the addition of the industrial, institutional and specialty items regularly featured by the parent company.

Joint Operation Established For Marathon and Northern

Arrangements have been completed to combine the interests of the Marathon Corp., Rothschild, Wis., and the Northern Paper Mills, Green Bay, Wis., John Stevens, Jr., Marathon president announced recently. Mr. Stevens said that by pooling mutual interests in the consumer product line, the possibility of sales expansion was greatly increased for both firms. He emphasized that completion of the deal by which Northern becomes a subsidiary of Marathon will mean "business as usual" for both organizations. Several months will be required to stabilize operating procedures within parallel areas of Marathon and Northern.

Milan Boex, Northern president and general manager, will continue in that capacity and will become a Marathon vice-president and board member. William E. Buchanan, a Northern director, was expected to become vice-chairman of the Marathon board. James P. Buchanan, Northern treasurer, will become a Marathan assistant treasurer. Mr. Stevens said the Northern trade name on the firm's toilet tissue, paper towels and package napkins would be retained.

Did you know that Paper Trade JOURNAL is the oldest and largest pulp and paper magazine in the world? Born in 1872, today Paper Trade JOURNAL carries more pages of editorial content and more pages of advertising in a year than any other pulp and paper magazine.

Groveton Paper Buys Finishing Plant in Mass.

Groveton Papers Co., Groveton, N. H., has recently purchased the buildings and property of the former Springdale Finishing Co., Canton, Mass. The announcement came from E. J. Ziskind, president of Crescent Corp., Canton.

The former textile plant comprises 200,000 square feet of manufacturing space and will be remodeled for paper converting operations. In addition to tissues, bonds, and heavier specialties at Groveton, Groveton Papers Co. (J. C. Wemyss, president) also operates a four-machine tissue-grade mill at Northumberland, N. H. and the affiliated Rushmore Paper Mills, Inc., a two-machine tissue mill at Natural Dam, N. Y.

Union Bag Cited by Florida

The 40,000 acres of timberland held by Union Bag & Paper Co. in the Florida counties of Clay, Nassau, Alachua, Putnam, and Volusia were certified as a Florida tree farm by joint action of the Florida Forest Service and Florida Chamber of Commerce. The certification, represents a tribute to good forest management. A framed scroll was received by C. A. Cannon, superintendent of land, for Union Bag.

To be eligible for a tree farm award, a landowner must show evidence of having practiced good forest management on his timberlands. According to Florida Forest Service standards, this means adequate protection of timberland from wildfire, with proper cutting and reforestation practices to insure a continuous source of income.

National Container Shipping Plan Rejected

The Interstate Commerce Commission has refused to permit National Container Corp. to buy certain operating rights of American Coastal Lines Inc.

National Container had proposed to buy the rights held by Coastal between ports on the Atlantic Seaboard and the Gulf of Mexico for $5,000 after negotiating a purchase of some $162,000 of Coastal's barge equipment. Some of Coastal's services have been suspended during the last three years, and Container Corp. proposed to resume these, starting with service through the intracoastal waterway between Jacksonville, Fla., and Trenton, N. J.

Competing transportation companies protested that Container Corp., as a major freight shipper itself, should not be permitted to control the Coastal operations, and these protests were upheld by I.C.C.

Berwin Paper Up For Auction

By order of the Bankruptcy Court, Berwin Paper Mfg. Corp., Dansville, N. Y. will be offered for sale at public auction on July 16, 1953 at 10:30 A.M. The real estate, machinery, machine clothing, raw materials, small tools, office equipment, will all be offered first in bulk and then in units and parcels.

Paper making equipment includes four beaters, two jordans, two screens, two bleachers, five filters, one pulper, one refiner, two cylinder machines with trims of 65½ inches and 74 inches. The company land and all the buildings are included in the sale.

The mill, formerly known as Berwin Paper Co., Inc., was purchased in 1951 by Gannett Co., Inc., newspaper publishers of Rochester, N. Y. Frank E. Gannett is the current president of the corporation.

Canadian Western Approve Crown-Zellerbach Offer

Crown-Zellerbach Corp. has been advised that holders of more than 2,240,000 shares of Canadian Western Lumber Co., or more than 70 percent of the outstanding shares, have accepted the exchange offer in connection with the proposed acquisition of that company.

It has been decided, therefore, to complete the exchange, as this represents more than the 51 percent minimum required, stockholders of the Canadian company were told.

Crown, however, is not declaring the acceptances effective, because the time was extended to June 30. The fact that Canadian Western shares are widely scattered makes it necessary that at least two weeks elapse after expiration of the exchange period to complete necessary legal details.

Canadian Western will pay a quarterly dividend of 12½ cents a share on July 15 to stock of record June 17. Consequently, shareholders who accept the exchange offer will receive that dividend, due to extension of the period. They will also become registered shareholders of Crown common some time in advance of the record date for its quarterly common dividend, which is normally payable October 1.

K-C Sets Up Fellowships

The Kimberly-Clark Corp., Neenah, Wis., has set up graduate fellowships totaling almost $10,000 in five colleges and universities, including the Institute of Paper Chemistry, Appleton, Wis. The fellowships provide for graduate study in forestry and chemical engineering as they relate to the pulp and paper industry.

Publishers' Paper Planning Filtration Plant

Officials of Publishers' Paper Co., Oregon City, Ore., have stated they expect to call for bids by the end of June on the construction of their proposed $200,000 filtration plant.

They expect to award the bids some time in July. Plans for the plant are nearly complete, but exact cost of the job cannot be determined until the engineers submit the final specifications.

St. Regis Sells Sawmill

Suwannee Longleaf Mfg. Co. has purchased a sawmill from St. Regis Paper Co. The mill, with a capacity of one million board feet per month on one-shift operation, was built by St. Regis in 1949 at Fargo, Ga.

St. Regis also agreed to sell Suwannee Co. stumpage rights equal to a minimum of 12 million board feet per year from the Suwannee Tract, now held by St. Regis under long-term lease.

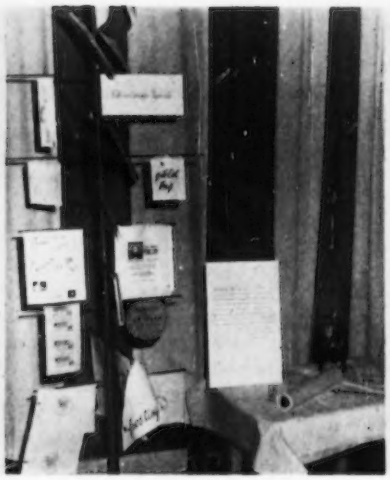
Adams Mildly Optimistic Toward Northeast Paper Futures

Sherman Adams, former governor of New Hampshire and current assistant to President Eisenhower, was interviewed recently by *Watertown Times* correspondent, W. E. Pearson, on the future of paper making in the northeast. Enroute to St. Lawrence University commencement exercises at Canton, N. Y., Mr. Adams told the correspondent that the decline in northeast paper production was inevitable.

He seemed to suggest that a migration of the industry to the south where wood is plentiful is desirable. "How can you justify economically the transportation of wood for 2000 miles before its utilization? It just doesn't make sense," he said.

Mr. Adams was confident, however, that the northeast would "get its forests back on a firm foundation" and that its forests products business was not "a dead issue." He foresaw the possibility of greatly increased forest yields and said that tax relief for woodlands owners, like that now provided by New Hampshire, would be a large factor in promoting an increase.

Receives Testimonial Scroll—H. S. Daniels, Executive Vice-President of Union Bag and Paper Corp., was recently honored on his 20 years of service both to his Government and his Industry. Occasion for the presentation was the June Open Meeting of the Paper Bag Industry at the Biltmore Hotel, New York City . . . Mr. Wayne Brown, Assistant Vice-President of Crown Zellerbach Corp., (right) made the presentation. The scroll outlines the wide scope of Mr. Daniels' activities in these positions: 1. Committee member of the Code and Executive Authorities of the Paper Bag Institute under the NRA. 2. Chairman of the Industry Advisory Committees to the WPB and OPA during World War II. 3. Industry Advisor to the OPS. 4. President of the Paper Bag Institute.



Clockwise — Hollingsworth & Vose Co.; Eastman Kodak Co.; Paper Rain Cape and Hat; Rhinelander Paper Co.; Reese Co., Inc.

Wet-Strength Papers

Expanded Sales Opportunity Seen for Paper Mills

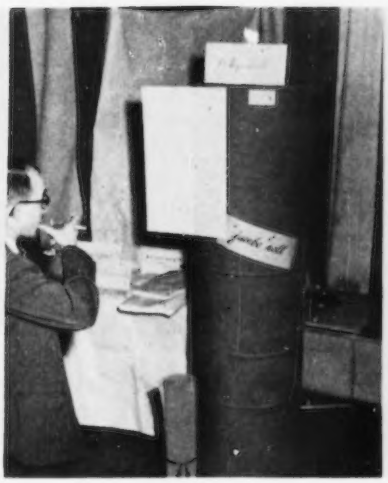
Novel household, recreational and industrial uses for paper were demonstrated by American Cyanamid's Paper Chemicals Department in conjunction with more than twenty mills and paper goods manufacturers in an exhibition held in New York last week.

Paper bathing suits, rain capes, paper pillow cases, blanket covers and disposable bed pads, paper kitchen aprons and baby bibs, a molded paper baby carriage, duck decoys and flower pots, paper auto seat covers and molded paper apple-packing trays were among the items displayed. The paper products shown all had one quality in common—their strength had been increased by the addition of a melamine resin, ("Melo-strength Resin"). Many of the items shown are now actually availalbe on the market; others are in the developmental or experimental stage.

Among the tests demonstrating wet-strength paper in action were freezer pack paper that had been boiled for seventy-two hours without disintegration; an inch wide strip of paper in water holding up a concreate block; and a woven paper fabric so strong that viewers were invited to wet and scour it with a steel brush. Two children in paper bathing suits splashed in a backyard-tank and guests were invited to slip on a paper rain cape and hat and test their qualities under a simulated rain.

"Economy has always been an outstanding advantage of paper," John M. Walsh, Manager of the Paper Chemicals Department of the American Cyanamid Co. declared. "Now improvement in strength, durability and other qualities through the use of melamine resin, makes paper available for many new uses. Greater convenience and cleanliness in the home are values that the American housewife may obtain from these advances in paper. Applications in agriculture, manufacturing, processing and in packaging and distribution of products are extensive and varied. Melamine resin is also said to give other values to paper including freedom from linting, dimensional stabilization of printing papers and inhibition of curling tendencies in papers.

"Paper mill technology and chemical research made great strides," Mr. Walsh continued, "but of all the new qualities of paper, we believe increased strength —wet or dry—is the most important. Scientists have known for a long time that an individual paper fiber can be as strong as a fiber of steel of the same dimensions. By the addition of melamine resin these individual fibers are tightly bound together, thus providing a practical way to make paper and paper products stronger than ever before. To help meet consumer demand for these new and improved paper goods, American



Open New Vistas

Cyanamid Co. will fully co-operate in providing the paper industry with technical information and service based on the latest research findings."

The demonstration was the first public showing of the broad application of melamine resin to consumer paper products. The original discovery was made at the Stamford Research Laboratories of American Cyanamid Co. in 1942 when it was found that the addition of synthetic melamine resin to paper pulp could as much as double the dry strength over the utreated paper, and increase its strength when wet by as much as five times over the untreated paper. This laboratory discovery was made available to the Armed Forces and the National Bureau of Standards.

After the war, Melostrength resin was made available for tests in civilian products. Towels that withstand vigorous rubbing, potato bags that hold together during shipment across the country, ice cube bags that won't give way even when the ice melts and lintless windshield wiping papers that won't disintegrate are among the most common consumer products. Other widespread uses where this wet-strength paper has been extensively tested include blueprint paper, photo-sensitive papers, butchers' papers, frozen food packaging, dental bibs, industrial wiping papers and laundry and cleaners' tags.

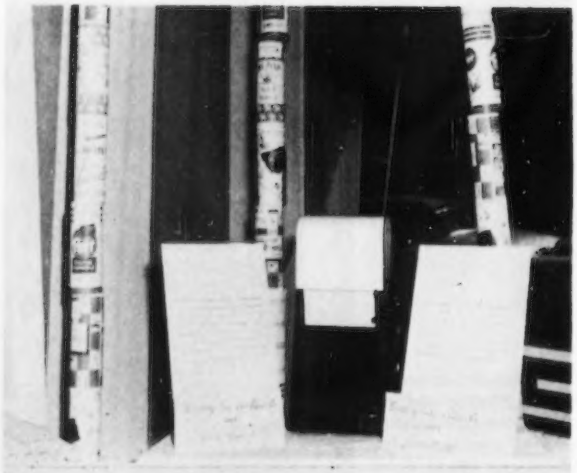
American Cyanamid's display of products made from wet strengthened papers should be of interest to most manufacturers of paper. The new uses and new ideas on wet strength papers which were exhibited, should open paper manufacturer's eyes to new potential markets for their products; Here is a field to be explored and developed by the progressive members of our industry.

HOLLINGSWORTH AND VOSE COMPANY are manufacturers of technical and industrial papers. Cleansertag is their trade name for Melostrength Resin-treated paper, on display, from which laundry and dry-cleaning marking tags are made. The tag paper, provided in ten colors, is made from rope fiber treated with Melostrength Resin. Harsh, rough laundering and dry-cleaning operations is said to have no effect on tags made from this paper supplied by Hollingsworth and Vose Company, who are one of the oldest customers of American Cyanamid Company.

SEAMAN PAPER COMPANY of Otter River, Mass. are manufacturers of high content Melostrength Resin-treated towelling stock and industrial all purpose papers. This grade of paper is shipped in jumbo rolls to mills, such as Graham Manufacturing Co., Inc., who

Clockwise — International Paper Co.; St. Regis Paper Co.; Paper Bathing Suits and Dress; St. Regis Paper Co.; Keyes Fibre Co.

Hurlbut Paper Co.



Sterling Pulp & Paper Co. and Acorn Paper Co.

Seaman Paper Co. and Graham Mfg. Co.

convert the paper for industrial and window wiping purposes. Graham Manufacturing Company in Holyoke, Mass., convert towelling grade paper containing Melostrength Resin into industrial wiping papers, window and windshield wiping papers, all sold under the trade name "GRACO."

RIESER COMPANY, INC. introduced facial tissues into the United States from Japan for the first time in 1922. Today under their own brand-name, Venida, Melostrength Resin-treated facial tissues are invading the market. A single resin-treated Venida tissue will support the weight of a half dollar when the tissue-wrapped coin is immersed in a glass of water. Also on display were Venida Kar-Pak Tissues, treated with Melostrength Resin to increase their strength, wet or dry.

RHINELANDER PAPER COMPANY specializes in the manufacture of greaseproof and glassine paper. Among the representative products made from Rhinelander paper treated with Melostrength Resin are butter wrappers, giblet bags, giblet wrappers, pork sausage bags, locker paper, frosting cones and ice cream covers. The locker paper consists of two sheets of laminated paper. The outer layer is treated with Melostrength Resin. Between the two sheets is a layer of wax. Constructed this way, the paper holds together under refrigeration, preventing dehydration of the food product.

INTERNATIONAL PAPER COMPANY showed ice-bags, coal bags, potato bags, shipping containers, automobile seat covers manufactured from International's twisting paper and saturating papers from which finished products such as table tops and counter tops are made. Resin-treated bags will carry a full load of ice cubes without danger of the paper bottom falling apart even when wet from melting ice. International's twisting paper in addition to appearing in automobiles has also been fashioned in women's summer beachwear. Another application for twisting paper is in table place mats.

HURLBUT PAPER COMPANY situated in the Berkshire at South Lee, Mass., has been a paper manufacturer for almost 150 years. Their Melostrength resin-treated "saturating" paper shown in the display, is used in the manufacture of table tops, counter tops, cabinet work, and their "saturating" paper is an absorbent paper made stronger, wet or drg. by the presence of Melostrength resin. In the manufacture of finished products such as table tops the paper is printed, then impregnated with a plastic material, then cut into sheets, placed one on top of the other and pressed together at high temperature.

MOSINEE PAPER MILLS COMPANY are manufacturers of several grades of paper among which is industrial towelling stock and windshield wipe. The bleached and unbleached kraft paper is treated with Melostrength resin and the finished sheet as a jumbo roll is then sent to a converter, Bay West Paper Company, a Division of Mosinee, located at Green Bay, Wisconsin, where the finished towelling is made and packaged as was seen in the display.

MARATHON CORPORATION are producers of waxed papers, frozen food

packaging, locker papers and freezer bags. Marathon makes paper for commercial food packers and for locker plants and home packaging use. On display are Marathon locker papers and freezer bags for home use.

EASTMAN KODAK COMPANY of Rochester, New York, uses Melostrength resin in its photographic papers to increase the strength of paper when wet or dry. A minimum total of two hours repeated wetting and drying after exposure as well as exposure to four separate wet coating of 15 minutes duration might otherwise reduce the life of photographic paper.

RIEGEL PAPER CORPORATION manufactures several hundred grades of papers in their four mills. Melostrength resin-treated paper made by Riegel has been creped and fashioned into paper bathing suits which are still in the experimental state.

ACORN PAPER COMPANY of San Francisco, California, manufactures and distributes paper roll towels treated with Melostrength resin. These treated towels, sold under the name Tretex Brand are merchandised in dispensers specially designed to prevent waste and eliminate litter.

STERLING PULP AND PAPER COMPANY of Eau Claire, Wisconsin, manufactures a wide variety of household and industrial towelling treated with Melostrength resin. In addition to being stronger, wet or dry, Melostrength resin-treated towels made by Sterling Pulp and Paper Company tend to be lint-free.

HAWLEY PRODUCTS COMPANY of St. Charles, Illinois, convert pulp treated with Melostrength resin into tropical hats, accoustical sound absorbers, typewriter cases and projector cases. Most unusual among these products is a full size baby carriage molded from treated pulp.

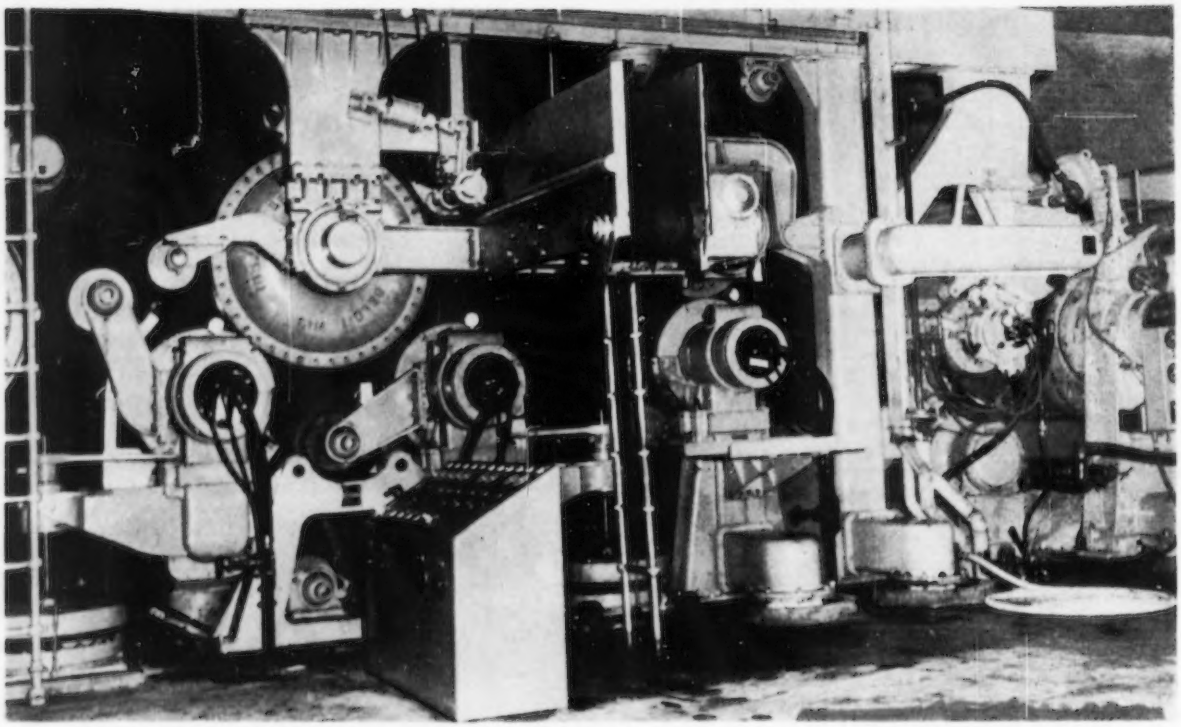
GENERAL CELLULOSE COMPANY, INC. is a converter in Garwood, New Jersey. Melostrength resin-treated paper plays a prominent role in many of their finished products. Hospitals and other institutions have found real savings in laundering costs while providing greater comfort for patients, using their disposable resin-treated bed pad. General Cellulose also manufactures disposable baby bibs treated with Melostrength resin and wet-strength towels and napkins. General Cellulose is now developing Melostrength resin-treated blanket covers, beach rolls, pillow case covers and a flame-proof disposable kitchen apron.

Marathon Corp.

Mosinee Paper Mills Co. and Bay West Paper Co.

Marlan Corp.

MARLAN CORPORATION of New York together with Laurel Fabric Company of Scranton, manufacture and distribute yard goods from Melostrength resin-treated twisting paper. The yard goods are then woven into open or closed fiber fabrics for use in making auto seat covers, trunk liners, beach and sports wear, table place mats, floor mats and beach hats. Trunk lining displayed is currently being used by Chrysler in manufacture of 1953 Plymouth, Dodge and automobiles also by Kaiser-Frasier, Studebaker and Hudson.



Vacuum Transfer from Wire to Press Section

D. A. Ely

Beloit Iron Works

"Vacuum transfer" arrangements developed by Beloit Iron Works are the newest way of carrying a lightweight sheet from the fourdrinier wire to the presses. They have already been successfully applied to five machines making lightweight kraft and to one newsprint machine. When orders now on hand are completed, this vacuum transfer arrangement will also be applied to machines making other types of paper, including tissue. There is every reason to believe that extended use of this arrangement will make possible new record production speeds for a variety of papers.

Before going any further, let us take a look at one of the recent "vacuum transfer" installations. In Figure 1, the Fourdrinier wire passes over the suction couch roll at the right and goes down to the wire turning roll in the lower center portion of the picture. A short distance above the wire turning roll is a "suction pick-up roll", which brings a pick-up felt into contact with the sheet on the wire. Suction is used to lift the sheet positively from the wire and onto the bottom of the pick-up felt.

A short distance to the left, a felt roll brings the bottom felt up below the sheet which is being carried on the underside of the pick-up felt. At the nip of the first transfer press shown at the left of the picture the sheet is pressed between the two felts. In addition to serving as a suction press, this press also assures positive transfer of the sheet to the top surface of the bottom felt. The problem of the sheet following the pick up felt has been eliminated.

The pick-up felt then passes around a felt roll to start its return run. In the upper part of the press framing, the felt is showered and then passed through a pair of wringer rolls, one of which is a Beloit suction wringer roll. This arrangement provides efficient continuous cleaning of the felt across its entire width.

In *Figure 1*, the suction transfer press is shown in the area just to the right of center. The sheet, on top of the first bottom felt, is carried into the first nip of the Beloit Cloverleaf press shown in the left portion of the picture.

Figure 2 shows another view of the Cloverleaf press after passing through the first nip, the sheet adheres to the large top roll. After passing through the second nip, the sheet leaves the top roll

The pictures used in this article were obtained through the courtesy of Halifax Paper Co. at its mills in Roanoke Rapids, N. C.

and is sent to the first dryer. The Cloverleaf press is a large top roll with two suction press rolls underneath. These suction rolls (which are similar to other suction press rolls) each have a diameter slightly over one half that of the top roll. Like other modern presses, the Cloverleaf press is equipped with air loading which gives the operators full control of nip pressure.

In the opening picture, a broke conveyor is shown to the right of the top Cloverleaf press roll. When the sheet passes through the Cloverleaf press but is not yet threaded into the dryer section, the doctor on the top Cloverleaf press roll removes the broke and dumps it on the conveyor. The conveyor can be made to run to front or back of the machine, according to the need of each mill. It can be made to dump broke through an opening at the back side of the machine and directly into the pulping system in the basement.

The use of the Beloit vacuum transfer arrangement with transfer press and Cloverleaf press has proved very satisfactory, because there is no "open draw" until the sheet is ready to enter the dryer section. The elimination of sheet breakage in the press section has enabled one southern mill to make lightweight kraft at a speed of 1930 feet per minute.

The basic vacuum transfer arrangement is also very suitable for use with other press arrangements. For example, the press section of a west coast newsprint machine was rebuilt so as to use existing "straight-through" presses following the vacuum transfer arrangement. This enabled the machine to run at higher speeds than was previously possible, with sharply reduced sulphite content.

On the basis of experience with the six "vacuum transfer" machines already in operation, we believe that the next few years will bring production of lightweight kraft, newsprint and other papers at speeds over 2000 feet per minute. It may even be possible to produce tissue at speeds over 3000 feet per minute.

The reasons for the outstanding performance of Beloit vacuum transfer arrangements can be more clearly seen when a comparison is made with two previous methods of taking the sheet from the fourdrinier wire, "open draw" and "pick-up felt".

When the fourdrinier wire carries the sheet over the suction couch roll, sheet strength is still quite low. If higher vacuum is used in the suction couch roll and in preceding flat suction boxes, sheet strength can be somewhat increased, but economic factors such as shortened wire life and greatly increased cost of obtaining the desired vacuum place a practical limit on what can be done along this line.

When the still tender sheet is passed to the first press with an "open draw", the limiting factor on machine speed with any given type of paper stock is essentially the weight of the sheet itself. In other words, a heavy sheet can pass an open draw to the press section with safety at much higher speeds than a lightweight sheet.

Because of this, lightweight sheets for many years have been run on machines using plain pick-up felts. In this system, the special felt comes down around a plain roll to make contact with the sheet on the wire. The sheet then has a tendency to stick to the bottom of the plain, dense, welt felt, especially if a grooved couch roll is used.

The use of a plain pick-up felt for so many years proves that the arrangement had great advantages for lightweight sheets. Nevertheless, the plain felt has many limitations as well as advantages. Since both sheet and felt are quite wet at the pick-up, the first press carries abnormally high water loads. Excess water in the sheet causes disturbances which result in lower sheet tests as compared to "open draw" machines. A certain proportion of the fibres on the wire stays with the wire rather than following the felt. Also, it is quite a job to keep the pick-up felt from "filling up."

The new Beloit vacuum transfer system has even more advantages than the plain pick-up felt, without many of the limitations. Open type felts like those used in ordinary press positions can be used in the pick-up position, instead of the very special closed type felts previously required. The grooved couch roll is eliminated, and a suction couch roll may be used. Suction is used for positive pick-up of the fibres from the wire to the bottom of the felt.

Use of vacuum transfer is one of the most revolutionary developments in the paper industry for many years. In the field of newsprint alone, it promises to increase production from existing machines as much as 25 or 35 percent, as well as getting from 10 to 15 percent more newsprint with the same amount of pulpwood. (Due to higher yield in groundwood, reduction of sulphite conserves pulpwood.) Newsprint machines being built today are being planned for speeds up to 2500 feet per minute.

When, in the near future, machines with Beloit vacuum transfer are running tissue and twisting, we will have the definite data to back up our belief that vacuum transfer has the same advantages for a wide variety of papers that have already been demonstrated on lightweight kraft and newsprint.

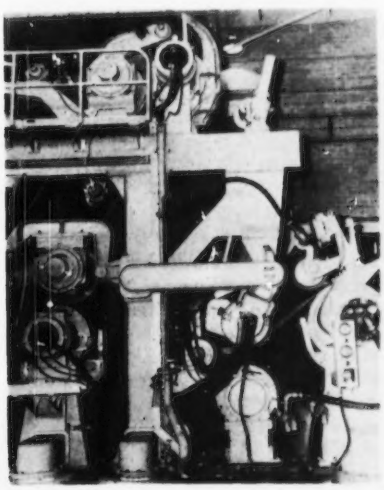


Figure 1—Vacuum transfer arrangement.

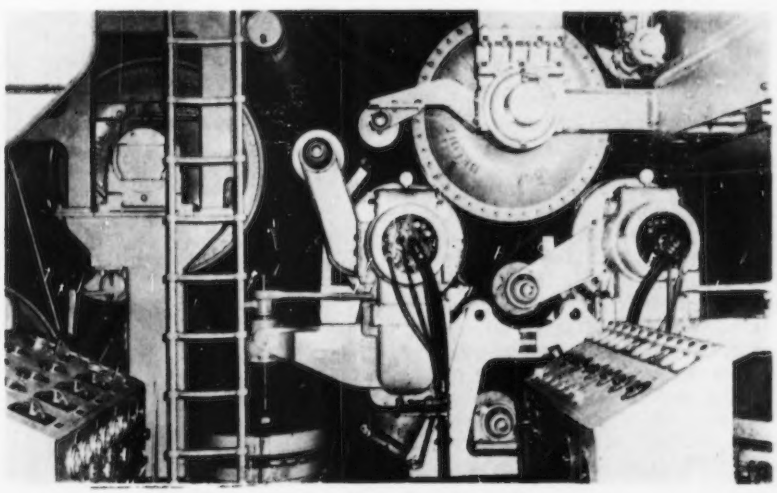


Figure 2—The Clover-leaf four-roll press.

Some Applications of Statistical Quality Control in the Paper Boxboard Industry

Brainard E. Sooy
Gardner Board & Carton Co.
Superintendent of Coating Operations and
Chief of Quality Control

This seminar, held April 27, 1953 in New York, is one of a series of ten on the general subject of Statistical Control for the Graphic Arts Industry. Together, they make a course of instruction for practising members of the graphic trades. Sponsor of the series is New York University, Division of General Education, Center for the Graphic Industries and Publishing. The immediate director is Professor S. G. Roth, and the course was conceived and is administered by Donald Macaulay, president of Paper Quality Control Inc., Chappaqua, N. Y.

Mr. Sooy prefaced his description of the quality control program at Gardner Board & Carton Co. with this piece of advice: "While attending the Milwaukee convention of the A. S. Q. C. two years ago, I overheard one man say, 'The machine tool people have done a wonderful job on statistical quality control, but where can I find something on it that works in my business?' The answer is that there is probably nothing—one must master the fundamentals and then work out the applications to fit his own peculiar needs. The most important point is that the fundamentals will work in any business, and there is a real satisfaction in harnessing them to one's own needs."

Mr. Sooy has no doubt on the value of statistical control, but he urges that it be recognized for what it is, i.e. one more piece of working equipment in management's tool kit. It never should be looked upon as a panacea for remedying all production ills without particular cost or labor. You will have to pay for the benefits of statistical control, says Mr. Sooy.

Definition

He defined statistical quality control as "an efficient communication system"

B. E. Sooy

—a system which cuts through the old, time-consuming methods of test control and quickly relays accurate reports between inspection and production and between production and management. Everyone recognizes that routine inspection has long been accepted in board mill operation. But whereas in the past, inspected samples of paperboard served for little more than dust-catchers and a minor source of waste furnish, the modern methods of statistical control translate the results of sample testing into fast and regular checks against inferior production. Tested samples now become the basis of immediate action. As an example of successful speed-up action, Mr. Sooy recalled that Gardner's old system of moisture testing required as much as twenty minutes to produce a percentage figure. If the figure called for action, more often than not the conditions on the board machine had so changed in the intervening period that constructive action was not possible. Now, after investing in a Hart moisture meter, Gardner can obtain a reading in around twenty seconds and make any needed machine changes immediately.

Emphasizing the importance of quality control to paper boxboard production, Mr. Sooy stated that "in years

gone by, fairly large variation in the quality characteristics of folding paper boxes were of little significance; but with greatly expanded use of the paper box, competition and mass production have added incentive to ever faster packaging machine speeds which have made extremely significant the quality variations, formerly neglected. The box maker of today must make boxes faster to keep costs down, and he must make them better to meet his customers' requirements. The answer is better methods of quality control in the making of the paper board and in the making of the carton." The speaker points out that one manufacturer of packaging machines has speeded-up his machines 55 per cent in recent models and plans greater speed increases in future models.

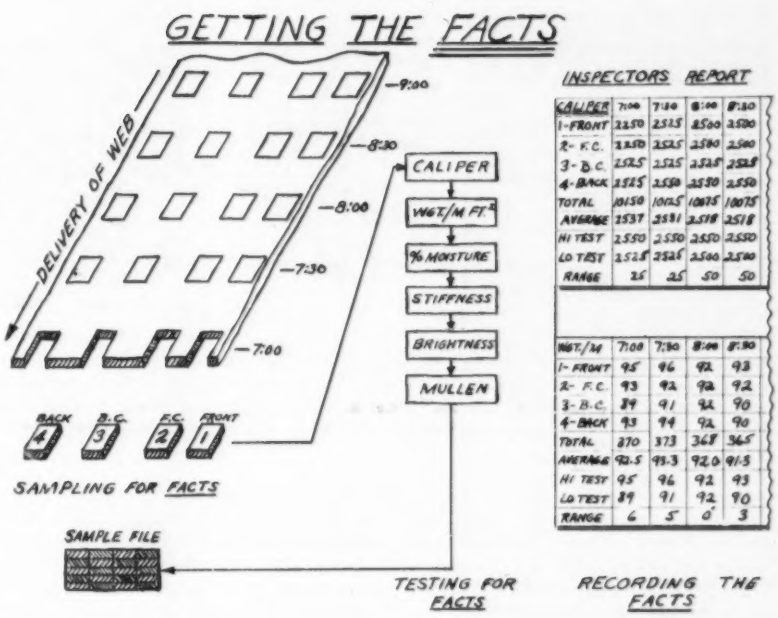
Customer Requirements

Typical of the purchasers of folding cartons is a manufacturer of cough drops, who now packages his product 250 per cent faster than formerly. His insistent cry to the paperboard maker is "More uniformity! More uniformity!" He, like the rest, has become quality conscious of the board he buys. It is not unusual for a customer to report that 36 cartons were defective out of a batch of 14,000. Such a report is made not as a claim for adjustment but to let the carton maker know the exact statistics on the performance of his product. Mr. Sooy remarks that "many customers are now setting a definite maximum percentage of tests which may exceed specification limits. Without better methods of setting specifications and determining the process limits, the paper maker faces serious difficulties. Statistical methods will eliminate human opinions and give him the facts he needs." In times of a slow market, it is the manufacturer with the facts to control his quality who will get the business," Mr. Sooy stated.

Getting the Facts on Board Production

"The real problem facing the paper maker is two-fold: first, process control which keeps the general level of quality correct, and second, a finer product control which assures the final purchaser that the individual boxes will meet specifications.

"The simple sampling plan shown in *Figure 1* gives accurate information as to both these quality variables. Variation *within* sets of four samples gives a picture of individual sample variations, and variations *between* sets of samples give a picture of general process control. From the recorded data the average value of a set of four



CALIPER	7:00	7:30	8:00	8:30
1-FRONT	2.530	2.525	2.500	2.500
2- F.C.	2.530	2.525	2.500	2.500
3- B.C.	2.525	2.525	2.525	2.525
4- BACK	2.525	2.550	2.550	2.550
TOTAL	10.150	10.125	10.075	10.075
AVERAGE	2.537	2.531	2.518	2.518
HI TEST	2.550	2.550	2.550	2.550
LO TEST	2.525	2.525	2.500	2.500
RANGE	.25	.25	.50	.50

WGT./M	7:00	7:30	8:00	8:30
1- FRONT	95	96	92	93
2- F.C.	93	92	92	92
3- B.C.	89	91	92	90
4- BACK	93	94	92	90
TOTAL	370	373	368	365
AVERAGE	92.5	93.3	92.0	91.5
HI TEST	95	96	92	93
LO TEST	89	91	92	90
RANGE	6	5	0	3

Figure 1—A graphic representation of the recommended procedure for sampling, testing, and reporting the facts on board production every half hour.

samples can be obtained, also the difference, or 'range', between the highest and the lowest. From the average and the range, analysis can be performed to indicate paper control limits for the averages and, under certain conditions, probable limits of variation of the individual samples. Experience has shown that these analyses give excellent approximations to actual results achieved on the paper machines and constitute the one *best* way for the paper maker to determine what he *can* do, and whether he can meet his customer's specifications."

The Quality Highway

Mr. Sooy pointed out that a sensible control system admits that variations will occur and is therefore directed toward holding the variations within allowable limits. At Gardner, control charts are prepared for each production run. Allowable limits of plus or minus five per cent variation in basis weight are plotted, and these become the scale for computing the limits of the other specifications. In this way, "standard target limits" are graphically presented to the operators, and the control chart becomes a "quality highway" as in *Figure 2*. "The control limits become the edge of the highway, and specification limits are likened to the edge of the ditch. Note in the illustration that the scale of test values appears at the left of the control chart and the time element appears at the bottom. Between 10:00 A.M. and 2:00 P.M. a steady trend developed. This should have been caught and reversed before the quality value exceeded the upper control limit."

Mr. Sooy explained that in setting up the charts for board mill operation, target limits are used which are based on industry standards. Having assumed that the five per cent variation shall be allowed, control directors then apply simple algebraic solutions of standard formulae to reduce control limits to terms of X, which is the average weight per 1000 sq. ft. Target limits are then determined for progressive values of X. "All machine orders carry specified weight per 1000 sq. ft. Therefore, by referring to the proper table, control limits for averages and for individual tests, and also for allowable range values can be quickly determined and put on the control chart *before* an order is begun."

The quality control department at Gardner maintains two charts for board production—one for the backtender and one for the machine tender.

Backtender's Control Chart

"The backtenders' chart indicates finished product quality. The upper portion of the sheet records visual inspection. Arbitrary weighting values are assigned to the various quality characteristics, such as finish, bender, ply separation. The inspector is required to record his evaluation of each quality characteristic on the basis of

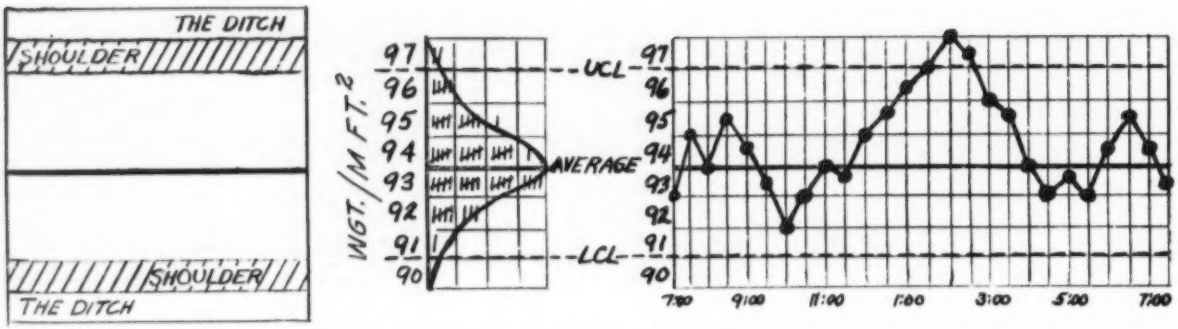


Figure 2—The "quality highway" applied to basis weight control. An average weight for normal production is established from tests of fair number of samples. The average line is then plotted on production chart. On each side of the line, at intervals established by statistical analysis, upper and lower control limits are set (dotted lines). Variation within limits is considered normal. Action is taken only when control line strays off the "highway" as it does following the 1:30 test.

Good, Fair, or Poor, then score the quality level by adding up the defects weighting values, and plot this value (called the Defective Quality Number) at the proper place on the chart.

The bottom portion of the chart shows average caliper, weight per 1000 sq. ft., weight range across the machine, and average moisture. Other quality characteristics may be plotted on separate charts as required."

Machine Tender's Control Chart

"The machine tender requires slightly different information. Experience has shown that if uniform weight and density can be maintained across the machine, other tests will fall pretty well in line. Hence, the machine tender wishes to know how the different weights are running across the machine. Since the inspector has already obtained this date, it is a simple matter to set up a series of graphs that visually portray the four, sample weights taken at the front, front center, back center, and back positions across the sheet. Average caliper and moisture are also shown."

At Gardner, both of these charts are displayed prominently near the machine where they can not escape the notice of the machine men. Inspectors make their tests and record the results on the charts every half hour. The charts cover a 24-hour daily cycle and carry the names of machine crews and inspectors. Mr. Sooy adds that this brings about friendly competition between shifts which serves greatly to increase quality and reduce defective production.

Success of the Gardner Program

Since the adoption of statistical quality control over Gardner's boxboard production, the percentage of basis weight variation outside the allowable five percent, has been reduced from 18 to five. The same principles of control have been applied widely to the company's carton production with equal success, and steps are now being taken to apply them to stock preparation ahead of the board machines.

Mr. Sooy feels that the program is valuable not only for its aid to production but also for the unique information it furnishes to management. By consolidating the daily charts into weekly analyses, the control department can supply management with complete and indisputable records of production which reveal recognizable trends. Management now knows how a given machine performs on a particular grade of board, what grades the mill definitely can and can not make, and what the strong and weak points are of each machine crew.

Characteristics of a Good Program

Mr. Sooy listed five characteristics of a good quality control program: 1. Simple organization so that maximum information is communicated in the minimum time, 2. Provision for incentive so that operating personnel can recognize the improvements in production, 3. Informational source to management so it can make wise decisions and have production facts to show critical customers, 4. Protection of customer's interest by presenting the facts of sub-standard production to operating personnel who unknowingly have developed bad working habits, 5. Promotion of confidence in the program among operating personnel to the extent that they accept it as an aid to their labors and not as a monitor over them.

It is Mr. Sooy's feeling that although the science of statistics is the core of quality control, the successful control program consists of only about ten per cent science. The other 90 per cent, he says, is psychology. The program must be carefully "sold" to operating personnel. They should be given credit for each advance. The control department must not force a host of innovations into the established routine of production, but should move slowly, ask for suggestions from the operators, and place the initiative in their hands whenever possible.

Women Inspectors

All inspectors on the Gardner control staff are women, who are carefully chosen for qualities of keen observation and agreeable personality. Their inspection booths are removed from the operating floor so that they may pass judgment on the samples they have gathered without interference from operating personnel. Once they have computed the test results on a group of samples, the inspectors return to the machine room and record these results on the charts. Even though the figures indicate the need for adjusting machine operation, the inspectors issue no orders to the operators. It is the operators' responsibility to consult the chart and take any necessary action. The operators are guided, however, by red, yellow, and green flag signals, which the inspectors hang beside the charts. If the latest 30-minute report indicates that production is "in control," a green flag is hung. If a trend toward the target limits is developing, the yellow flag appears. And the red flag is pinned up when the production graph goes "out of control," as it does in *Figure 2*.

Mr. Sooy declared that most control experts estimate a concern can spend economically about 10 per cent of its gross on quality control. And he points out that much can be done toward quality control for considerably less money. The cost of Gardner's successful program runs around 3 per cent of gross income.

How Good Are the Best Printing Papers?*

Charles Canfield

President, Canfield Paper Co.

Trouble-shooting bad printing runs has become the daily task of the paper merchants and they don't like it!

A landlubber knows a sailboat when he sees one, if the sail is up. So it's a sailboat and it doesn't bother him that it might be a catboat, sloop, ketch or schooner or maybe anyone of a dozen different rigs.

The landlubber also knows paper when he sees it and he can tell you almost immediately whether it is wrapping paper or printing paper because wrapping paper is strong and brown, and printing paper has ink on it. If he's a businessman he knows that printing paper comes in four grades; newsprint, glossy or slick paper, rough paper and Hammermill Bond.

Now we paper experts, here today, know there's more to it than that and who the hell said Hammermill Bond anyway? We know that there are all kinds and grades of paper and if we are honest we admit that there are probably a lot of grades we never heard of and that possibly there are not too many grades that we know very much about.

You who are mill salesmen representing mills don't have to. You can specialize in only a few grades so you are expert in those grades, know just how they are made, just what they will do and all about their limitations and good qualities.

Portrait of a Merchant Salesman

But consider the average merchant salesman. He is called on to know a lot about all the grades that all you people specialize in. He has to sell them at a profit in a competitive market and nowadays more than ever he has to keep them sold.

Just for instance, let's take a good look at Johnny Jones who is an average or perhaps an above average merchant salesman working for an average fine paper house in New York. He's about 40 years old has a wife and two kids, lives in Jersey, obviously isn't Irish although he might have been if I had given him a different name.

He's a high school graduate, a good salesman, knows his business, works hard, plays hard too sometimes. He plays golf Sunday morning, if he doesn't have to mow the lawn or take his wife to church. He bowls Tuesday night with the paper gang, occasionally gets a little loaded and misses the 10:15 and gets bawled out by his wife. He has to do all these things whether he likes it or not because he's my average paper salesman. You know him well but I want to tell you a little about his business and his problems.

Johnny has had his ups and downs selling paper. Last year he did well, made about $10,000 for himself. This year he won't know until December 24th how well he will do, but he does know that his best customer sold out to another printer which probably leaves him out in the cold on that one. He knows that so far this year business has been pretty good and the boss says he has a hunch it will be good for most of the year.

So Johnny is working hard, doing all right, and having plenty to worry about, too.

Last year he had ten good accounts from whom he got about $250,000 worth of business and 30 more worth about $50,000. Knowing that every year he's bound to lose some of this business he has another 60 names he's working on, some of whom buy a little now and then, others who are just prospects. All together he calls on about 100 concerns some of them daily, some weekly, others only once a month or twice a year.

Being a good and successful salesman, he doesn't take a sample of your superduper folding deluxe text paper in nightingale shade and peddle it to all his customers even if it cost only 10c per lb. What Johnny's trying to do is sell himself and his house to a few good printers, lithographers, and publishers. When they are sold and properly sold he knows that although they will buy from 15 or 20 competing houses, he can if he's good and he's lucky snag about 1/3 to 1/2 of their business and that's what he has done with the 9 good accounts he has left at the start of 1953.

Typical Customers

Those 9 best customers line up something like this. #1 is a lithographer, a big one who does a general business, most of it colorwork. 2 is a magazine publisher. 3 another lithographer specializing in labels. 4 and 5 good medium sized printers. 6 a specialty deal he wouldn't talk about much. 7 a book publisher. 8 a large consumer who does a lot of advertising and promotion work and who has multilith presses up on the 14th floor. 9 is another lithographer who also has a battery of small high speed letterpresses.

His other 30 accounts are all over the map and buy all kinds of paper, board,

* Presented at the June 1, 1953 Eastern SAPI Meeting, Advertising Club, New York, N. Y.

book paper, bond, manifold, tympan, specialties, cover, text paper, etc.

Maybe you think those first 9 customers don't buy or estimate on a slew of different kinds of paper, too. That's the beginning of Johnny's troubles.

Let's just take one account, the lithographer with a general, high grade business. He's a darn good account, would be better if he didn't have so much paper sent in to him and if some of his orders weren't specified. Johnny splits the business with Larry O'Mara, a competitor, but a good guy and a good salesman. The firm is smart, the buyer is smart—no seconds and they don't try to find somebody who's peddling at a lower bracket. The business is high grade, mostly coated and plain offset but the smaller orders run the gamut of most everything you ever heard of. (Actually 60 different grades of paper last year.) The buyer depends on Johnny to recommend the right paper for the job and to get him good paper. Johnny does it, to the best of his ability, but there are two snags which give him a bad time, and they are so basic and so important that I only hope I can make you realize how important they are.

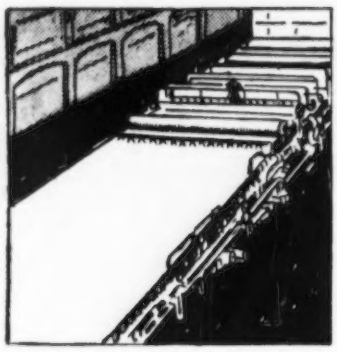
The first one is the variety of kinds of paper on the market and the number of grades made by different mills with which he is supposed to be completely familiar.

His company buys 2/3 of all its requirements from four paper mills and the balance from 50 others. Johnny has to know intimately all the grades regularly made by those 4 mills and have at least a speaking acquaintance with the products of many of those 50 others. He needs to know something too about the abilities and the limitations of all these mills and should also have a pretty good idea of their reliability as manufacturers and the value of their promises.

If he can master all that, he's a seven-days wonder, but that's only the beginning. He'd have a full time job just helping his customers select the proper grades to use, but he also has competition from forty-seven hundred competing grades he can't sell so it's also wise to know something about them. Add on the fact that today each mill has its own trade customs and minor variations in pricing and terms and you can begin to see why Johnny needs a little help. You and your mills can and do help. Keep it up and add a little sympathy and understanding, too, will you please.

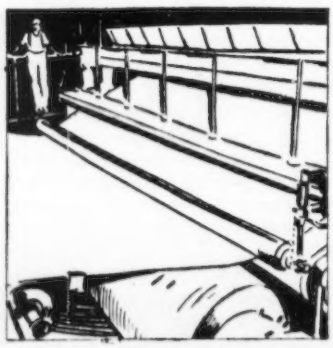
Salesman or Trouble-Shooter?

Now the second snag ties in with the first, but is becoming more and more serious. Johnny is supposed to be a salesman; you know, one of those guys who go out and get the orders. His boss thinks of him as a salesman, too, and has heard a lot of talk about how sales-



men have gone soft in the last ten years and have forgotten how to sell if they ever knew how. He's toying around now with one of those courses in "How to Sell in 12 Easy Lessons," which include a lot of tricks on how to get the signature on the dotted line. That isn't what Johnny thinks he needs right now. He wants a course in how to shoot trouble and make it stay dead and he needs a 48-hour day to practice in.

Take last Tuesday, for instance. At 9:30 he was up on the 14th floor of customer 8, explaining to the multilith operator that even though that 8½x11 opaque bond he had sold was curling a bit it probably wouldn't get any worse unless the weather did and with a bit of patience, Joe, you should get by with it. At 10:30 he had a date with customer 3 whose night gang spent 8 hours getting 500 sheets of Johnny's Litho Coated through the press and out of the ink rollers, and who thought that $265 would just about recompense him for time lost. He had a luncheon date at 12:00 with his book publisher customer and landed an order for 100 tons of groundwood offset, an order he had been working on for a long time. He took that order back to the office and found a call from customer 1. "Come at once, your coated offset is picking." Well, Johnny spent from two-thirty to quarter of six watching the press, looking at the blanket and sorting through unprinted paper trying to find the cause. He finally did and got home late for dinner again. He still hadn't had time to write out that order. Now what bothers him is that this is



getting to be a typical day, not an exceptional one, all except for the big order. That part of it was exceptional.

Obviously trouble is taking too much of Johnny's time and he doesn't get paid for it. It's taking too much of my time and your time and the customer's time. Very little of it is imaginary. It's there, it can be located, the reason for it explained, but then what? Who is going to pay for it? What do we do next and how do we keep it from happening again? We (you and I) settle each complaint as it comes up, as fairly and as equitably and as cheaply as we know how. But there just are too many complaints and the situation is getting worse and more costly.

Furthermore, most of our troubles seem to be centering around the lithographic process. So much so that some paper mills are beginning to wonder if they are not being victimized and some otherwise fair-minded and intelligent lithographers are about convinced that paper mills can't make good paper and don't care a tinker's damn if they can't.

(Right here is where I send Johnny after an order and take over, because I'm involved in this just as much as he is.)

Being constantly in the middle of this controversy I'm all bruised up by the brickbats so even at the risk of being shot by one side and stabbed by the other, I want to discuss this really serious situation with you. Maybe if we can determine some fundamental reasons we can somehow find a cure.

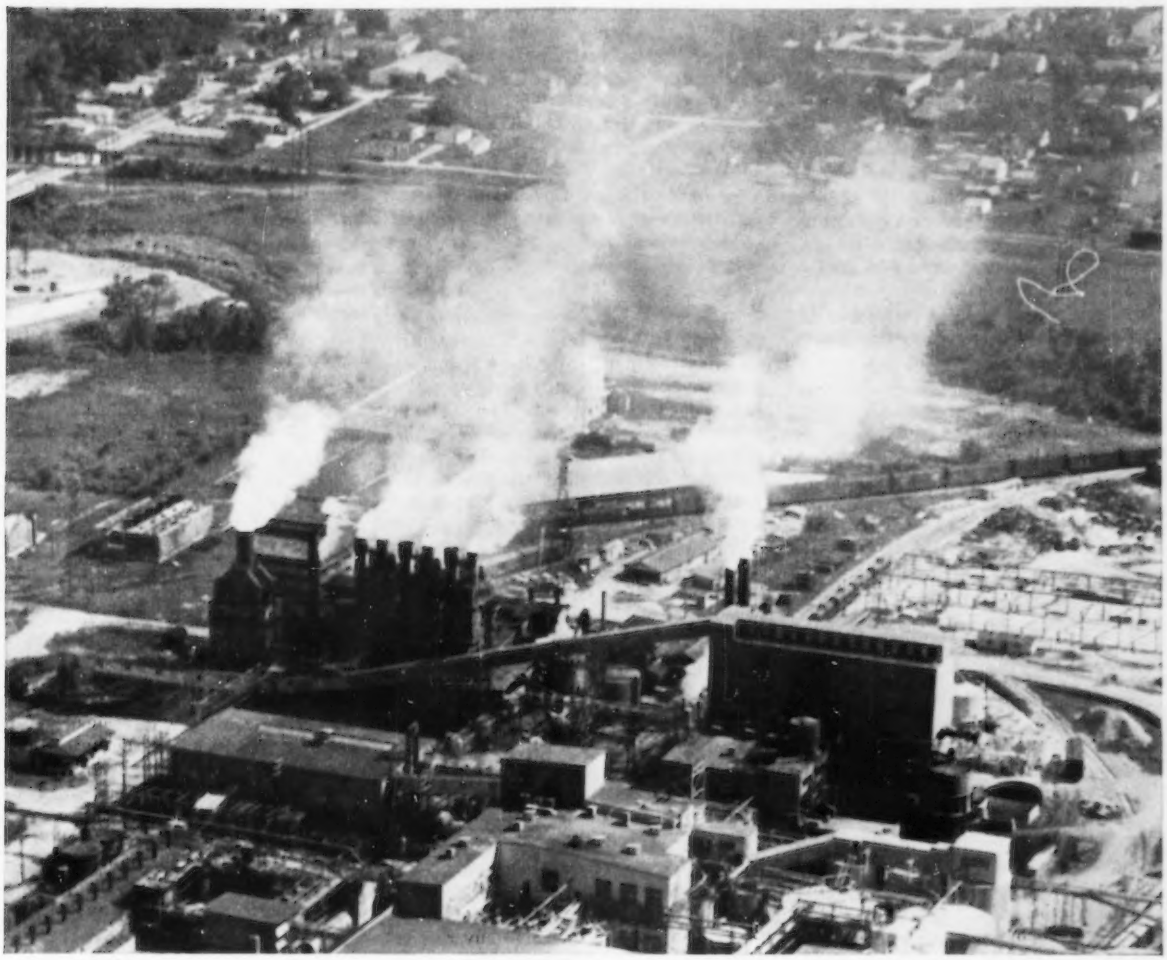
Some Reasons For the Trouble

Basically I think it's a good deal like the troubles Old Man Deruchi and his half-wit son used to have lining up leader pipe on a roof. The old man would send the boy up on the roof to fit the pipe while he lined it up from down below. The kid would place the pipe and holler down "How 'tis Paw?" Deruchi would fly in a rage and bellow back, "How 'tis? Tis tain't 'tall. Pipe don't fit where it do."

That's our main trouble. 'Tis tain't 'tall. Pipe don't fit where it do. I'll try to explain.

1st—This upsurge of trouble is not localized in the paper business. It's everywhere, in all manufactured products. Just talk to your friends in other industries. They are kicking, too. Washing machines are delivered with a few bolts missing, new cars have a dozen or so bugs to be straightened out, a toy you buy won't work when you get it home, occasionally you get a *real* lemon, and all in spite of rigid factory inspection. The same with paper. Nine deliveries may be good, the tenth unuseable.

This kind of trouble I think, is a penalty of mass machine production. The men on the machines have to get produc-



There's good will in the air

. . . when your odor abatement program is really effective

Even at the most modern pulp mills, escaping sulfide odors continue to be a major problem. Condensing, scrubbing, or burning the waste gases have not been the complete solution to effective odor abatement—odor abatement that literally means "good will in the air."

Du Pont chemists and engineers, who have worked closely with management, engineers, and production men at most of the country's leading pulp mills, turned their attention to helping them work out their waste gas odor problems. As a result of these experiences, specially engineered odor-masking compounds—Du Pont "ALAMASK" odor-masking compounds—were developed.

In actual mill operations, the use of "ALAMASK" has effectively reduced the noticeable malodors. As these operations continue, priceless good will is being built for the mills with their communities and with their employees.

Perhaps Du Pont "ALAMASK" odor-masking compounds, combined with Du Pont experience in the pulp and paper industry, can be the answer to your odor abatement problem. For information and technical service, write to E. I. du Pont de Nemours & Co. (Inc.), Organic Chemicals Department, Wilmington, Delaware.

Du Pont **Alamask**

REG. U. S. PAT. OFF.

Odor-Masking Compounds

DU PONT

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BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY

tion no matter what and there is little time to be a craftsman. In due course this pressure for production creates the attitude of what the hell; shove it through; maybe it will get by. Over all qualities may improve but individual quality often suffers.

2nd. High cost of labor and a large but competitive market puts a premium on high-speed production. All machines including paper machines and printing presses have just about doubled their prewar speed. I am not at all convinced that high speeds make a better product and certainly any tolerance has to be less.

3rd. The cost of operating those machines has doubled, too. Any trouble that slows down expected production, costs somebody a lot of money and competition tends to reduce any price padding that might be insurance against unforeseen emergencies.

4th. Printing orders are bigger and better than they used to be, runs are longer, big splashes of color, large solids, multicolor jobs are now usual instead of an exception. Such masses of color demand a lot from paper.

Now these four points are just as applicable to the printing industry as they are to the paper industry and paper is the common denominator between us.

In the old days the boys in the paper mill made paper by ear and by taste, no push buttons. They used to claim that paper was made in the beaters. Machines ran much slower, paper could be better formed on the wire, a fellow had time to catch and correct troubles before he had run a couple of miles of web. Paper making was an art. Now it's *supposed* to be a science and a lot of the help only know which button to push.

In the old days printing presses were often hand fed, the pressman bragged he could print anything and he knew he wasn't bragging. He had time to make adjustments, time to stop the press if something was wrong, time to fuss with his ink, with the paper, with his press. When he got a job done he knew it was good and was proud of it. He was an artist in his trade, a craftsman if you please. Nowadays, *he* also has buttons to push and a lot of paper is supposed to automatically run through the presses every day, all day. If it doesn't he's in trouble and then it's paper that got him into trouble because paper is what he uses to print on.

Paper Takes the Blame

No matter whether it's ink or press adjustment or poor copy or poor plates or bum paper, the result shows up on the paper and nowhere else.

So paper is always involved, it has to be. It's our job to determine not whether there's trouble with the paper, that's a foregone conclusion, but rather whether we made the paper wrong or whether it's just because that cranky stuff called paper won't or can't do what it was called on to do, or whether our perfectly good paper might not just possibly be taking the blame for something else. Unfortunately such a determination is often hard to make. Our fate is that we are always of necessity trying to make an all purpose paper, perfect in all respects, and there just ain't no such animal.

In spite of all our improvements we can't and probably never will consistently make perfect paper. We know it but we don't admit it. We sort what we make and call one pile perfect paper and the other one seconds. Sometimes in the midst of a complaint I think they mixed the labels or wish that they had. Our perfect paper may be 98% perfect for letterpress and 90% perfect for 9 out of 10 lithograph jobs. It might be all right for the 10th one or it might be completely impossible. The hell of it is we can't know ahead of time.

Paper Often Deserves Blame

That's because paper just like printing continually varies throughout a run. The difference between seconds and firsts is only a matter of degree and some human being has to use his or her judgment as to where to draw the line. Some judgment is better than others. So a lithographer will buy perfect paper for a requiring job and expect it to be perfect. Why shouldn't it be, that's what he paid for? He might also buy rejects or seconds, at a price, for a less requiring job. The reduction in price enables him to afford to spot that paper where it can't do harm. What burns him up is to buy perfect paper and find out that it isn't and he blames us for selling it to him. But we are doing the best we can!

A carload of paper is not one single product which can be inspected, OK'd and shipped. It is 100,000 sheets each one a separate item cut from over 100 miles of web. These sheets can be inspected for glaring defects and spot tested for printability, and such sorting and inspection is usually satisfactory for letterpress work. But the defects which can build up into bad trouble on an offset press are very hard to find.

They are hard to find because they don't show up under casual inspection and most of the time we don't know what to look for anyway. But an offset blanket apparently does. It has radar. It can find things we can't even see. It will pull off of the surface of paper anything that isn't bolted down, which may be cutter dust, loose surface fibers, tiny clay or sizing lumps, lumps of matted fiber, anything loose which might have been floating around the mill and didn't get built into the sheet. Because a blanket is a flat somewhat tacky surface which comes in contact under pressure with all of the surface of a sheet of paper, it will pick up and collect anything that might be loose or that might pry loose from that surface. Because it *collects* these loose particles, one tiny particle per sheet soon adds up to hundreds on the blanket. Usually each one means a spot that won't take ink and as a result shows a white spot or a doughnut in a printed solid. If there is no solid nobody cares much and that, I feel, is the basis for much of our troubles.

Lithographers' Problems

To produce good results where large areas of ink have to be laid down on the sheet, a lithographer must have almost perfect paper. There isn't a single paper mill in the country who can honestly assure him that he will get such a delivery. This is so because our mills are essentially dirty mills in the sense that there is always loose material floating around throughout the mill.

They were built to make paper satisfactory for letterpress printing which was never as requiring a process as offset. Improvements and refinements in paper manufacture are constantly being made but have never caught up with the ever increasing critical requirements of offset. Faster and bigger offset presses, new fast drying tacky plastic inks, the present tremendous use of large masses of color have all combined to keep the lithographer's demand for quality way ahead of our ability.

We, all of us, therefore suffer from a lack of definitions of perfection. If all mills made all of their paper consistently fair or even consistently poor as they sure enough did during the war, we would have many less complaints to contend with. Lithographers and their customers would know what to expect and govern themselves accordingly.

But what happens when we make some very good paper, some not so good and some just plain stinko?

Estimator A figures on a top quality grade. He figures he should get 4500 impressions an hour because he did the last two times he ran the job. Estimator B is an optimist and figures on 5000 and estimator C is feeling pessimistic and figures on 3000. A gets the order, the paper is delivered, the first two skids are perfect and run at 5000, the next skid curls a little and averages less than 4000, so does the 4th, but this average isn't too bad. Comes the back up where lost time should be made up. Suddenly the pressman notices a lot of white spots appearing in the solid areas. He stops, washes up, thins down his ink and starts over again. More "hickies." Apparently the paper is picking, so the paper salesman

is called in. The consensus of opinion now is that the trouble is surface linting, the condition isn't too awfully bad, and that by washing up every 1500 sheets the job can get by. But! The ultimate customer gets an inferior job and the average production was only 3000 per hour. The estimate figures ten hours for the back up. It took fifteen hours, about $200 difference. Who should pay for that difference, and how about the consumer who isn't happy because he didn't order all those little white spots in his solids.

Or a lithographer runs a carload of offset on a large two-color press. 75,000 sheets run through like a breeze. Then comes the last skid. There is one little lift of paper full of torn and doubled up sheets. A gob goes through the press, busts two blankets and it takes three hours at $38 a hour to change the blankets and patch up the make-ready. Cost to somebody $260. Who should pay for it? Seems like a high penalty for one little gob of paper out of a carload doesn't it?

Now these are two typical examples out of hundreds.

Recently we counted 12 current complaints. Eleven were lithographic complaints, one was letterpress. The paper involved came from 8 different mills, all tops in the trade. Nine of these complaints were settled without chargebacks, three involved substantial bills. All twelve took up a lot of time getting them straightened out. Everyone of them cost our customers something in lost production and resulted in a job not completely up to expectations. All but one was unquestionably due to paper not performing as well as it was *expected* to.

Suggested Solutions

What is the answer? I'm frank to admit I don't know. Have we led our customers to expect too much? Or possibly do they assume too much. Does the lithographic process inherently require more perfection than can be built into paper or have those requirements only temporarily gotten ahead of our ability to make improvements in our product. Could it be possible that like Robinson Crusoe we have built our boats so big we can't handle them; that presses are too big and too fast—and our paper machines the same, or is it just a question of better adjustment and more and better understanding of our mutual problems.

I have two suggestions which might help.

1. The reinstatement of an insurance factor by lithographers when estimating on difficult jobs. By this I mean that occasional difficulties including an occasional ruined blanket should be figured as part of the cost of being in the lithograph business, not as a penalty against a paper mill. If trouble doesn't happen, the saving should not be considered as an additional profit but as a reserve against trouble which is surely coming.

2. The establishment of some measuring sticks, some standards of quality, of performance, some definitions of responsibilities, some trades customs so to speak so that all of us will have a better idea of where we stand. Would a meeting of responsible lithographers, merchants and mills be possible and could they accomplish anything? I don't know. It might be worth trying.

Paper Mill Process Water Purification

An English firm has perfected a new system of mill process water purification. This process is said to be particularly advantageous where the mill raw water is heavily polluted and or where water of a high degree of purity is required for manufacture of paper for special uses.

A good example is the manufacture of wrapping tissue for silverware. Silverware wrapping in particular must be absolutely free of any acid or chemical ingredient which would cause tarnishing in damp or humid weather.

A recent installation of a new plant has enabled a Lancashire (England) paper mill to overcome this difficulty with great success. The makers of this particular equipment who are said to be receiving inquiries from all over the world, are the Pulsometer Engineering Co., Ltd., Reading, England.

In early days, this Lancashire mill employed water filtered by normal processes. Owing, however, to increased industrial activity the river water deteriorated to such an extent that by 1946 it had become too polluted to enable high-grade papers to be made by the mill using customary filtration methods.

The new Pulsometer plant which has completely overcome the difficulty, daily treats three million gallons of water. Before filtration, this volume passes through two settling towers; the ordinary method of clarification would have required six towers of similar size at much greater capital cost. The reduction in the amount of chemicals used is in the ratio of two to six, and there is said to be a corresponding saving in maintenance and supervision charges.

The raw water from the river supplied to the plant is often dark brown in color, in consequence of the industrial effluent discharged into it holding much undesirable matter in suspension and chemicals in solution.

Colloidal matter in the raw water, which causes color, froth and slime, carries a negative electrical charge and advantage is taken of this fact when clarifying water by the latest method. A solution is added causing the formation of colloidal silica particles and a hydroxide which is positively charged. These attract the negatively-charged impurities in the water, and electrically neutral particles result which coalesce to form a flocculant mass.

Treating three million gallons of water a day continuously as the Pulsometer plant does in this mill, there would normally be a large amount of alum floc to deal with and being very light, it would in the ordinary way settle too slowly. To get over this difficulty the water, after being closed with alumina, is treated with the special solution before it enters the settling tanks, to produce a negative charge which unites with the organic impurities and the positively-charged alum, thus adding to the weight of the floc and speeding up the rate of settlement.

Pre-filtration measures therefore include the pumping of raw water into a dosing channel then into the concentric reaction chambers in one or the other of the conical towers there to be gently agitated. The resulting floc described above falls rapidly to the bottom of the cones and is periodically drawn off as sludge. The water thus clarified, overflows into a sill on the outer annular portion of the towers and is fed by gravity to the filters. Whenever necessary, the water is drawn through the filters with the aid of the filtered water booster pumps. The whole design is new.

The two towers of the plant are able to deal with more water than the present gravity filters. The advantage of this is that more gravity filters can be added at reasonable cost, should the paper mills' demands increase, without the expense of adding new towers.

PAPER PEOPLE

L.-R.—Ernst Mahler, Alexander Calder and Nathan Pusey

Calder Receives Honorary Doctorate

An honorary Doctor of Laws degree was recently bestowed on Alexander Calder, President and Chairman of the Board of Union Bag & Paper Corp. Mr. Calder received the degree from Lawrence College, Appleton, Wis. at the school's 104th commencement. The degree was the last to be given from the hand of Nathan M. Pusey, the president of Lawrence, who will soon become the head of Harvard University.

Ernst Mahler, who recently retired as executive Vice-President of Kimberly Clark Corp., presented Mr. Calder for his degree. He introduced Mr. Calder as "an outstanding leader in the paper industry."

While awarding the degree President Pusey cited Mr. Calder as follows: "Builder of a great modern corporation, respecter of the pre-eminent role that knowledge and science must play in industrial growth, fosterer of learning and research, teacher of others, it is our privilege today to pay tribute to you for the courage, imagination, and constructive strength you have shown throughout your business career. In token of respect both for what you are, and for the creative leadership you have exercised within that industry which means so much to this region, we are happy now to confer upon you the degree of Doctor of Laws, *honoris causa*, to admit you to all the rights, privileges, and obligations which pertain thereto, and joyfully to welcome you into the body of our Lawrence alumni."

P. M. Goodloe

Research Appointments at Brown

Dr. George A. Day, Director of Research and Development for Brown Co., Berlin, has announced the appointment of Dr. Paul M. Goodloe as assistant director of the department.

At the same time, Robert A. Webber has been made administrator of the department and that Douglass H. McMurtrie and Harold R. Titus have been made senior research associates.

Dr. Goodloe has been in charge of the sale of Solka-Floc, the company's form of alpha-cellulose.

Westbrook Steel Award to Haselton of Rhinelander

Dr. William R. Haselton, who was graduated from The Institute of Paper Chemistry with the Ph. D. degree at the Lawrence College commencement on June 14, was announced at the exercises as the recipient of the Westbrook Steele gold medal.

The award, established in 1941 by Westbrook Steele, President of the Institute, is presented annually by vote of the faculty to the graduate whose doctoral thesis is most outstanding.

Dr. Haselton, originally from South Glens Falls, N. Y., received the B.Ch.E. degree from Rensselaer Polytechnic Institute in 1949 and the M.S. degree from Lawrence College (The Institute of Paper Chemistry) in 1951. His thesis was "An Investigation of the Adsorption of Gases by Wood and Its Components and of Gas Adsorption Techniques as a Means of Studying the Area and Structure of Pulp and Paper." When he finished his graduate study in February he was employed by the Rhinelander Paper Co., Rhinelander, Wis., where he now is Technical Director.

To receive the Steele award, a student's thesis must show evidence of understanding of the relationship of the subject of investigation to the broader problems of pulp and papermaking, originality, and soundness of approach to the subject, ingenuity of techniques and thoroughness of investigation, and craftsmanship in preparation and presentation of the thesis.

Scott Paper Co. Retail Sales Div. Changes

William Bailey, currently Philadelphia Retail divisional manager, has been named Chicago Retail divisional sales manager, W. S. Dade, Assistant to the National Retail Sales Manager, will move to Philadelphia on a temporary basis to head that Retail division.

Adams Receives Honorary Doctorate

William R. Adams, vice-president, St. Regis Paper Co., was awarded an honorary doctor of law degree at the recent commencement exercises at Union College, Schenectady, N. Y. Mr. Adams, an alumni trustee of Union, was valedictorian of the 1928 graduating class and a member of the Phi Beta Kappa honorary society.

ASTM Award to E. G. Ham

Everett G. Ham, technical director of the John A. Manning Paper Co., Troy, N. Y. has been named as one of the ten outstanding members of the American Society for Testing Materials to receive a 1953 ASTM Award of Merit. Presentation of the award will be made during the annual meeting of the society in Atlantic City, N. J. at a luncheon in Haddon Hall on June 30.

For many years Mr. Ham has been active in the affairs of the society having served as a member of its Board of Directors and on numerous committees including Committee D-6 on paper and paper products and Committee D-9 on electrical insulating materials.

Gibraltar Names Two Exec. Vice-Presidents

Gibraltar Corrugated Paper Co., Inc., announces that William P. Katz, formerly vice-president and director of production, has been elected executive vice-president in Charge of Production and that William H. Greenberg, formerly vice-president and director of sales, has been appointed executive vice-president in charge of sales.

W. P. Katz

W. H. Greenberg

New Plant Manager At Stone Container

Joseph H. Gribble, for 52 years an employee of the Stone Container Corp., has been promoted to plant manager of the company's mill at Franklin, Ohio.

Mr. Gribble in 1922 went to work with Stone Corp. as a "broke boy" and progressed gradually in several machine jobs to the position of purchasing agent for the mill.

Joseph Fiori, Jr., a graduate of the University of Cincinnati in mechanical engineering, has been named purchasing agent succeeding Mr. Gribble. Mr. Fiori, a Marine Corps veteran, gained valuable paper mill experience during his undergraduate days at the University.

Joseph Fiori, Sr. is vice-president of Stone Corp. and is in charge of operations of mills in Franklin and Coshocton, Ohio, and Mobile, Alabama.

Canadian Sales Mgr. For Continental

According to a recent announcement, George L. Ursaki has been appointed sales manager for the Paper Division of Continental Can Co. of Canada, Ltd.

EASTERN CORP. Likes Tracerlab BETA GAUGES Because . . .

they can now "insure uniformity of weight in all runs of genuinely watermarked Atlantic Bond." If weight control is a problem in your sheet processing operation Tracerlab Beta Gauges can do the same for you.

Eastern Corp. also says, "The advantages of the Beta Gauge are many, such as: Elimination of tear-outs (or sampling), which previously were taken periodically to determine the accuracy of the weight; increased uniformity of basis weight; also increased production with resultant savings due to elimination of off-weight paper and faster weight changes. The instrument has proven to be very satisfactory and the Machine Tenders have absolute faith in it. The running weight of the sheet is constantly recorded and if any variation occurs, changes can be made immediately."

Tracerlab Beta Gauges are now cutting costs and increasing quality in many sheet processing plants . . . paper, rubber, floor and roof covering, plastic, tape, laminated products, metal foils . . . and on many special materials. Both Absorption (as shown) and Backscatter gauges, were pioneered and **first** made available to industry by Tracerlab.

ASK for FREE booklet "Tracerlab Beta Gauges"

Tracerlab®
130 HIGH ST., BOSTON, MASS.

Absorption and Backscatter Gauges $3,300

Tracerlab Beta Gauge at Eastern Corporation Bangor, Maine

NEWS OF ASSOCIATIONS

Dinner Meeting at Orr Felt & Blanket Co.—M. B. Orr, president, Orr Felt & Blanket Co. at microphone. Left to Right from Mr. Orr—George Lydick, new chairman; D. W. Newell, new first vice-chairman, and James Ozias, retiring secretary.

Miami Valley Supts. Elect Officers

The Miami Valley Division of The American Pulp and Paper Mill Superintendents Assn. held its annual golf tournament on June 5, 1953 at Piqua, Ohio.

The Orr Felt & Blanket Co. of Piqua was host at the Golf Club. It also donated the golf prizes; and, in addition, entertained at a cocktail party before the dinner meeting.

A trophy was presented to the low net golfer in memory of Charles Ludwig of the Mead Corp., Chillicothe, Ohio. Mr. Ludwig joined the Superintendents Association in 1924. At the time of his passing, he had been associated with the Mead Corp. for 46 years.

J. W. Noll, Munroe Falls Paper Co., Munroe Falls, Ohio, was the winner of the Charles Ludwig memorial trophy.

Edward Bindley as chairman of the Nominating committee presented a slate of officers for the year 1953-1954. This slate was elected in its entirety. The newly-elected officers are: Chairman, George Lydick, Beckett Paper Co.; First Vice-Chairman, Dean Newell, Philip Carey Manufacturing Co.; and Second Vice-Chairman, Robert O. Stevenson, Champion Paper & Fibre Co.

The first meeting in the 1953-1954 season will be held sometime in September. Both the exact date and place of meeting will be announced later.

New Community Forum Started

Michigan paper men, interested in techniques which will aid and abet their relations with the public and with their own employes, are forming a Southern Michigan Community Relations Forum, which held its first session Tuesday, June 23, at Western Michigan College.

With the assistance of Otto Yntema, director of extension and adult education at Western Michigan, the first meeting was built around open houses, guided tours and business, industry and education days.

Impetus for this first meeting is being given by a group of Wisconsin paper people who gave the principal talks. Wisconsin has for some years had a similar program underway among its paper industries.

William Race, president of the Sutherland Paper Co., Kalamazoo, and chairman of the steering committee for this forum, opened the meeting with a brief talk, followed by Robert Ramsey of the Port Huron Sulphite and Paper Co., Port Huron, who spoke on "General Objectives of the Community Relations Program."

The first of three major portions of the day was voted to B-I-E days, with Paul Grath of the Neenah Paper Co., Neenah, Wis., talking. John Burr, Central Paper Co., Muskegon, handled the following discussion period.

After a lunch and a business meeting, H. P. Moore of the Bergstrom Paper Co., Neenah, Wis., spoke on "Planning and Conducting Open Houses." Mr. Ramsey was the discussion leader.

The closing feature of the day was a talk by Ralph Pratt, Hoberg Paper Mills, Green Bay, Wis., on "Planning and Conducting Guided Tours." Frank Southon of the Kalamazoo Vegetable Parchment Co., Parchment, Mich., led the discussion.

Members of the Steering committee for this forum were Fred C. Goodwill, resident manager of the St. Regis Paper Co., Kalamazoo; Maxwell Bardeen, president, Lee Paper Co., Vicksburg; Gordon B. Bonfield, vice-president, American Box Board Co., Grand Rapids; John Burr, personnel director, Central Paper Co., Muskegon; George N. Carleton, president, Detroit Sulphite Pulp and Paper Co., Detroit; Tom C. Fletcher, Fletcher Paper Co., Alpena; Francis Kiefer, vice-president, Port Huron Sulphite and Paper Co., Port Huron; Daniel T. Quick, president and treasurer, Peninsular Paper Co., Ypsilanti; Charles Wood, president, River Raisin Paper Co., Monroe; John Wood, vice-president, Kalamazoo Vegetable Parchment Co., William Race and Otto Yntema.

TAPPI Statistical Conference Opens

Fifty-one experts from the paper industry and allied interests were on hand Monday, June 15, as the Technical Association of the Pulp and Paper Industry and Western Michigan College opened their joint conference on the application of statistical methods.

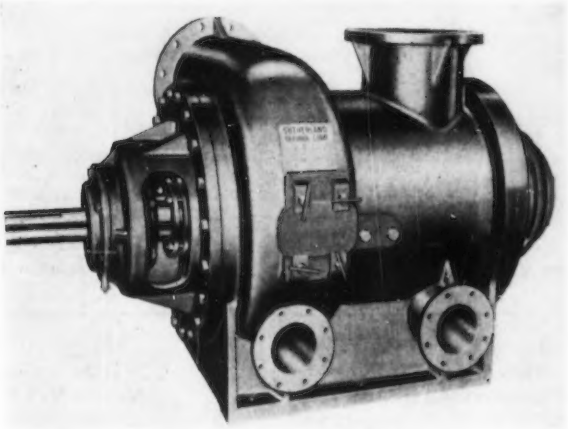
The workshop and study sessions will be conducted for two weeks, with four teachers in charge. They are Dr. Charles Butler and Dr. Fred Beeler of the WMC mathematics department, Dr. Geoffrey Beal, University of Connecticut, and Dr. Charles A. Bicking, ordnance corps, U. S. Army.

This conference is designed to acquaint the students with the applicability of statistical methods to their problems and to give them preliminary training so that they may use statistical methods in research, production and quality control. Special speakers each evening will also discuss pertinent problems in the field as they have found them in their own particular industrial situations.

N.P.T.A. Exhibit Scheduled for Sept. 21-23

The Fall Convention and Exhibit of The National Paper Trade Assn., will be held this year at the Conrad Hilton Hotel, Chicago, September 21-23. Forty-six manufacturers and converters have already reserved space. Significant is the number of new exhibitors, at this writing ten companies plan to display their lines for the first time to buyers attending the convention. Present indications point to a record number of exhibitors and, a large attendance of their customers and prospects. Applications for exhibit rooms will be received at the N.P.T.A. office up until August 7, on which date room assignments will be made.

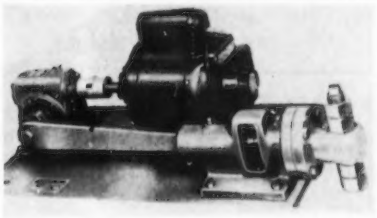
NEW EQUIPMENT AND SUPPLIES



Smaller Defibering Unit

According to a recent announcement from Sutherland Refiner Corp., Broad Street Bank Bldg., 143 E. State St., Trenton, N. J., this company is now making a 12-inch Breaker Trap to meet the paper industry's need for a defibering unit suitable for lower tonnages than those produced by the standard 18-inch Breaker Trap.

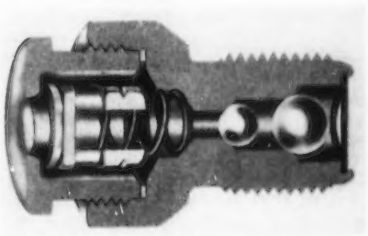
These units are being used for selective defibering of waste papers and similar coarse refining operations. The manufacturer states that the machines will increase the acceptance of clean fiber without reducing the large particles of hard dirt-producing materials. When the hard dirt particles are left large, they can be readily removed in subsequent screening operations. A permanent magnet is incorporated in the inlet of the units to retain tramp metal particles thrown out of the pulp stream by the impeller.



High Pressure Proportioning Pumps

A line of proportioning pumps for use in the chemical and paper industries and in water treatment in boiler plants has recently been developed by Walter H. Eagan Co., Inc., 2336 Fairmount Ave., Phila. 30, Pa. The standard models meter precise quantities of viscous materials, slurries, suspended solids and corrosive liquids in a range of from 0 to 100 gallons per hour at pressures to 1200 p.s.i. Special units can be obtained with capacities to 300 gallons per hour at pressures to 20,000 p.s.i.

Automatic controlling devices are available that adjust capacity while the pump is operating and all models can be made with special metals, oversized valves, water seals and motors to meet particular operating conditions. Dual suction and discharge springloaded valves with valve check balls that seat positively assure the greatest degree of accuracy it is said. The pumps are designed so that packing can be changed without breaking pipe connections. When required, timers, agitators and liquid level controls can be obtained with these precision proportioning units.

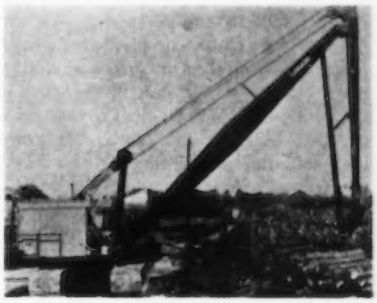


Lubrication Fitting For Plugs Subject To High Back Pressures

An Alemite lubrication fitting, featuring three checks against loss of lubricant, line fluids, or gases and especially designed for use on lubricated plug valves subject to extreme back pressures, is now offered by Alemite Div., Stewart-Warner Corp., 1826 Diversey Pkwy., Chicago 14, Ill.

For use in paper mills, chemical plants, and other process industries, the fitting consists of two ball checks in addition to the standard check valve at the top of the fitting. This construction is said to offer absolute protection against escape of line fluids and prevent any possibility of all checks being fouled by foreign matter at the same instant.

The fitting permanently replaces the lubricant screw so that the lubricant may be injected into the valve directly from hand gun or bucket pump, regardless of back pressure. The manufacturer also offers a heavy duty booster-type hand gun (Model 6268), which develops 15,000 pounds pressure. Special lever guns and bucket pumps can be furnished as well.

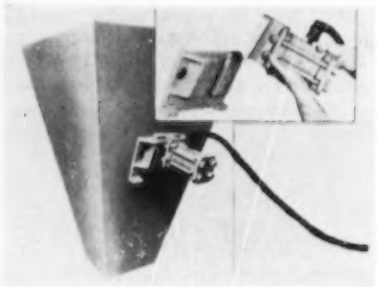


Larger Pulpwood Rake

A larger Lorain Pulpwood Rake is now available as a front-end attachment for the 45-ton Lorain L820-KS Crawler Machine, according to the manufacturer, Thew Shovel Co., Lorain, Ohio.

The unit consists of a 40 ft. long boom with a 22 ft. long stick hinged to the upper end of the boom. At the lower end of the stick is a steel "board" 7 ft. wide by 3 ft. high. The action is such that this board is moved toward the machine with a horizontal pulling action which scrapes or rakes the wood off the barge. Due to a hookup based on the principle of the parallelogram, the board maintains a semivertical position at all operating angles. The maximum reach of the Rake is 60 ft. sufficient for the machine to stand on the dock and reach to the far side of the barge.

It is stated that the board is always in plain sight of the operator and is always under his control. The ability to spot the board precisely and to control its action has greatly reduced damage to the barges. The unloading rate is keyed to the daily requirements of the mill. Output of the rake has proved to be at the rate of approximately 2 drags per minute and sufficient to unload 100 cords of 5 ft. wood per hour.



Portable Bin Vibrator

Portability is the feature of the Two-inch Piston Diameter Type LSRR Cleveland Vibrator, now being marketed by Cleveland Vibrator Co., 2828 Clinton Ave. West, Cleveland 13, Ohio. The unit is employed to prevent arching, bridging, and sticking of bulk materials in bins, hoppers, chutes, and other handling equipment.

Portability is accomplished through designing the vibrator with a cast steel male bracket which can be inserted in a female bracket welded to the side of any bulk storage bin. The unit is particularly suited for locations where one vibrator can be moved and set in a number of brackets to serve several bins.

The unit weighs approximately 30 pounds and has an overall length of 10 inches. The female bracket is 11 inches x 7½ inches x 2½ inches. Accessory equipment includes five feet of oil resistant air hose and an automatic lubricator.

Variable-Control Liquid Feeding Unit

A gravity-type liquid feeding device, embodying a new patented principle of control, has been developed by Hankinson Corp., 255 Biltmore Bldg., 951 Banksville Rd., Pittsburgh 16, Pa. Suited for batch processes, it is recommended for treating water in cooling tower systems, acid feeding for bleaching, blending, or wherever a constant gravity feed of liquids is needed.

According to the maker, the unit operates with no restriction to the liquid flow, yet the feed can be varied from less than one-half pint a day to more than 500 gallons a day. Each feeder includes a combination sight glass and bubble-type flow meter. The rate of liquid feed is indicated by the bubble frequency in the sight glass.

The feeder can be constructed of material to suit specific fluids. All parts subject to corrosion are made of stainless steel with teflon gasketing. The size of the unit is determined by user's requirements. It can be made to any specifications within the range of one quart to hundreds of gallons.

PRICES

MARKET WOOD PULP

Third Quarter Contract Prices Per Short Air-Dry Ton

	Delivered Basis		Varying Freight Allowances		
	U. S.	Canadian	Swedish	Finnish	Norwegian
Groundwood		‡$60.00/ 90.00			
Sulfate, Bleached	140.00/147.50	145.00/155.00	137.50/142.50§		
Semi-bleached Sulfate	135.00/140.00		§127.50/130.00		
Sulfate, Unbl.	90.00/110.00	100.00/125.00	100.00/105.00*	105.00/135.00*	
Sulfite, Blchd.	140.00/ —	140.00/ —	§130.00/135.00	140.00/ — *	140.00/145.00*
Sulfite, Unblchd.	120.00/ —	120.00/ —	§110.00/ —	120.00/125.00*	
Sulfite, Unbl'd (glassine)		124.00/ —	§115.00/ —		
Soda, Blchd.	140.00/ —	140.00/ —			

† Midwestern Markets. ‡ F.o.b. Shipping Point. § On Dock Atlantic Ports * Freight allowed.

RAG MARKET

New Domestic Cotton Cuttings

Delivered Mill Basis

	Per 100 lbs
No. 1 White Shirts	$13.50/$14.00
No. 1 Unblchd. Muslins	14.50/ 15.00
Blchd. & Unblchd. Underwears	15.00/ 15.50
Blchd. Canton Flannels	11.00/ 11.50
No. 1 Light Silesias	8.50/ 9.00
No. 1 Light Prints	7.00/ 7.25
No. 1 Blue Overalls	8.00/ 8.50
Suntan Khakis	8.25/ 8.50
Fancy Shirts	6.50/ 6.75
Mixed Khakis	4.75/ 5.00
Cottonades	4.50/ 4.75
No. 1 Washables	4.00/ 4.25

Old Domestic Cotton Rags

(Prices to Dealers, F.o.b. Ship. Pt.)

	Per 100 lbs.
Mixed White	$3.00/$3.50
Cotton Pants & Overalls	2.75/ 3.00
Thirds and Blues, Repacked	2.00/ 2.25
No. 1 Roofing Rags	1.00/ 1.05
No. 2 Roofing Rags	.90/ .95

COTTON LINTERS

Memphis Market

F.o.b. Oilmills

	June 9 Per 100 lbs.
Grade 1 n.a.	
2	$12.50/$10.50
3 1st cut—felting	10.00/ 8.50
4	8.00/ 5.50
5	5.00/ 4.50
6 * 2nd cut—chemical	4.25/ 4.00
7	4.00/ 3.75

* Based on 73% cellulose.

Bagging

(Prices to Dealers, F.o.b. N. Y.)

	Per 100 lbs.
Foreign Gunny	$4.00/$4.25
Heavy Wool Tares	4.00/ 4.25
Foreign Scrap Burlap	2.75/ 3.00
Austr. Wool Pouches	5.50/ 6.00
Domestic Manila Rope	6.50/ 7.00
No. 1 Sisal Strings	5.00/ 5.25

WASTE PAPER MARKET

Prices to mills, per ton, f.o.b. cars shipping point (includes brokers' fee.) These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal. See TRENDS.

	N.Y.-Phila. June 22	Boston June 22	Chicago June 22	Los Angeles June 1
No. 1 Mixed Paper	**$9.00/ 10.00**	$9.00/ 10.00	**$8.00/ —**	$15.00/ —
No. 1 News	12.00/ 13.00	12.00/ 13.00	14.00/ —	15.00/ —
Overissue News	18.00/ 20.00	12.00/ 17.00	17.00/ —	15.00/ —
Mill Wrappers	12.00/ 14.00	12.00/ 15.00	11.00/ —	14.00/ —
Old Corrugated	20.00/ 23.00	19.50/ 20.00	20.00/ 23.00	21.00/ —
Double Kraft Ld. Corr. Cuts	35.00/ 47.50	42.50/ 47.00	45.00/ 47.50	35.00/ 45.00
100% Kraft Corr. Cuts	45.00/ 60.00	45.00/ 60.00	60.00/ —	45.00/ —
No. 1 Brown Kraft	30.00/ 35.00	31.50/ —	30.00/ —	45.00/ —
Triple Sorted Brown Kraft	40.00/ 45.00	36.50/ 40.00	— / —	— / —
New Br. Kraft Env. Cuts	60.00/ 70.00	60.00/ 75.00	60.00/ —	50.00/ 55.00
New Br. Kraft Bag Cuts	50.00/ 55.00	55.00/ 60.00	65.00/ —	40.00/ 45.00
No. 1 Gdwd. Shvs.	20.00/ 30.00	**25.00/ 35.00**	19.00/ —	27.00/ —
White Newsblanks	50.00/ 60.00	**50.00/ 65.00**	**45.00/** —	55.00/ 60.00
No. 1 Soft Wht. Shvs.	55.00/ 65.00	**65.00/ 75.00**	50.00/ —	— / —
Hd. Wht. Shvs.	85.00/100.00	80.00/ 95.00	**85.00/** —	100.00/ —
Hd. Wht. Env. Cuts	110.00/125.00	110.00/120.00	**100.00/** —	110.00/ —
Col. Tab. Cards	45.00/ 55.00	55.00/ 60.00	**40.00/** —	**24.00/** —
Manila Tab. Cards	65.00/ 75.00	75.00/ 80.00	**70.00/** —	**47.50/** —
Mixed Ledger	30.00/ 40.00	30.00/ 35.00	**45.00/** —	26.00/ —
White Ledger	50.00/ 60.00	**57.00/ 60.00**	**60.00/** —	40.00/ —
No. 1 Book & Mag.†	nominal	**12.00/ 16.00**	**15.00/** —	— / —
No. 1 Rep'd. Hvy. Books‡	nominal	25.00/ 35.00	**27.50/** —	— / —

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% groundwood. § Deld.

MATERIALS

Aluminum sulfate:		
cml. bags, c.l. wks.....cwt.	$1.65	/ 1.85
iron-free, c.l. wks.....cwt.	3.25	/ 3.55
Casein, acid prec.:		
dom. sh. pt. c.l.....lb.	.28	/ .37½
imp. ex. dock.....lb.	.16½	/ .23
Caustic soda:		
c.l. wks. solid, 76% cwt.....	3.35	/ 3.70
flak. & grd. 400-lb. drums....	3.75	/ 4.10
liquid 50% tanks....	**2.55**	
liquid 70% tanks....	**2.65**	
China clay:		
dom. air-float, c.l. wks.....ton	**10.00**	
water-washed, lump, filler.....	**11.00**	
coating	**17.60**	**/30.50**
imported, ex. whse...short ton	16.00	/29.50
Chlorine:		
single-unit tanks, works...cwt.	2.70	/ 2.93
multi-unit, 5 cars per yr. cwt.	3.20	/ 3.80
Formaldehyde:		
USP, inh. dms. c.l. wks...lb.	**.0666**	**/ —**
l.c.l., E. wks.....	**.071**	**/ —**
Fuel oil:		
Bunker C, No. 6 hvy. tanks, N.Y. harbor .....bbl.	**2.10**	**/ 2.13**
Lime:		
hydrated bags, wks.....tons	14.50	/15.50
Gum rosin:		
K, M, N drms, c.l. Savan cwt.	7.32	/ 7.45
Rosin size:		
70%, gum & pale grds., tank cars, south, sh. pt.....cwt.	**6.50**	**/ 6.60**
Salt cake:		
dom. bulk, c.l. wks.....ton	17.00	/19.00
Soda ash:		
light, 58%, bags, wks.....	1.65	
bulk .....cwt.	1.35	
Sodium silicate, 40° Be.:		
tank-cars, wks. .....cwt.	**.90**	**/ —**
drums, wks. .....cwt.	**1.25**	**/ 1.80**
42° Be. WW. tank-cars, wks. cwt.	**1.45**	**/ —**
drms, wks. .....cwt.	**1.80**	**/ 2.35**
Sodium peroxide:		
dms. c.l. E. of Miss.....lb.	**.186**	
l.c.l. do. .....lb.	**.196**	**/ —**
Soybean, protein:		
chem. isol, wks., c.l., bags..lb.	**.23½**	**/ .24¼**
Sulphuric acid:		
60° Be. cbys. c.l. wks.....cwt.	1.75	/ 2.00
l.c.l. wks. .....cwt.	2.30	/ 2.45
tankcars, wks.	16.30	/18.60
Sulphur:		
crude, c.l. mines, contract, long ton	25.50	/27.50
f.o.b. vessels Gulf.....	30.00	/30.50
Sulphur dioxide:		
liquid, coml. cyl. wks.....lb.	**.09**	
multi-unit cars .....lb.	**.0535**	
Starches:		
pearl corn, bags, c.l. prod. plant	**6.39**	**/ —**
white, dextrines, c.l. do...cwt.	**7.78**	**/ —**
potato, Idaho, c.l. wks....cwt.	**8.50**	**/ —**
potato, Maine, f.o.b. wks...cwt.	7.25	/ 7.35
potato, imported O.D.....bags	7.50	/ 8.65
Talc:		
domestic, sacks, c.l. wks. ..ton	25.00	/30.00
Titanium dioxide:		
anastase, c.l. deld., bags .lb.	.21	/ .21½
l.c.l. deld. .....lb.	.22	/ .22½
rutile, c.l. deld. .....lb.	.23	/ .23½
l.c.l. deld. .....lb.	.24	/ .24½

May Newsprint Statistics

Production in Canada (including Newfoundland) during May 1933 amounted to 480,239 tons and shipments to 467,656 tons. Output in the United States was 92,405 tons and shipments were 91,168 tons, making a total North American production of 572,644 tons and shipments of 558,824 tons compared with continental production of 599,412 tons and shipments of 596,261 tons in May 1952, according to the Newsprint Service Bureau. There was one work day less in May this year than in the same month of 1952.

The Canadian mills produced 14,352 tons less in the first five months of 1953 than in the corresponding period of 1952, which was a decrease of 0.6 percent. The output in the United States was 40,624 tons or 8.3 percent below that in the first five months of last year, thus the total continental decrease under production in the comparable period of 1952 amounted to 54,976 tons or 1.9 percent.

Stocks of newsprint paper at the end of May were 195,856 tons at Canadian mills, and 9,124 tons at United States mills, making a combined total of 204,980 tons compared with 191,160 tons on April 30, 1953 and 182,307 tons at the end of May 1952.

Wage Increase Granted By Knowlton Brothers

A new wage agreement granting an increase of six cents an hour to all employes paid by the hour plus a few individual job adjustments has been reached by representatives of Knowlton Brothers, Watertown, N. Y., and Circle K Local 463 of the International Brotherhood of Paper Makers. It becomes effective July 1 and will govern the year-period ending June 30, 1954. Announcement of the new agreement was made jointly by David C. Knowlton, president of the company, and Thomas Huttemann, president of Circle K Local.

Bids and Awards

GPO 3rd Quarter, 1953 Paper Needs

WASHINGTON — Bids were received on June 15 by the Joint Congressional Committee on Printing for paper for the use of the Government Printing Office for a three-month period beginning July 1, 1953. Awards, announced June 22, are indicated by asterisks (*) before the names of the successful bidders in the tabulation herewith.

Amounts are in cents and fractions per pound, or in dollars where indicated.

Newsprint

No. 1—40,000 lbs., 24x36—64; rolls, 19, 24, 36, 38, and 48 ins. wide; diameter, 34 ins. min., 36 ins. max. (3-inch fiber cores); min. order, 40,000 lbs.

* Perkins-Goodwin Co.	06.18c
Bermingham & Prosser Co.	06.3
Butler Co. (Southwestern Paper Co.)	6.325

No. 2—1,200,000 lbs., 24x36—64; rolls, 23, 34½, and/or 46 ins. wide; diameter, 37 ins. min., 39 ins. max. (returnable 3-inch iron or metal-capped fiber cores to be furnished by the contractor); min. order, 40,000 lbs.

* Perkins-Goodwin Co.	06.18c
Bermingham & Prosser Co.	06.3
Butler Co.	6.325

Machine-Finish Book

No. 5—1,100,000 lbs., 25x38—70; flat, cut any size, min. width 21 ins., max. width 48 ins.; min. order, 40,000 lbs.

Mudge Paper Co. (300 tons only)	13c
* Frank Parsons Paper Co., Inc.	11.60
Barton Duer & Koch Paper Co. (250 tons only)	15.07
Wilcox-Walter Furlong Paper Co. (500,000 lbs. only)	11.79
Walker Goulard Plehn Co.	13.90

No. 6—10,000 lbs., 25x38—70; rolls, 9½ ins. wide; diameter, 34 ins. min., 36 ins. max. (3-inch fiber cores); min. order, 10,000 lbs.

Mead Sales Co.	14.04c

No. 7—425,000 lbs., 25x38—70; rolls, 19, 28½, and 38 ins. wide, 34 ins. min., 36 ins. max. (3-inch fiber cores); min. order, 40,000 lbs.

Marquette Paper Co.	10.33c
Barton Duer & Koch Paper Co.	14.20
* Wilcox-Walter-Furlong Paper Co.	10.119
Walker Goulard Plehn Co.	12.91

English-Finish Book

No. 12—85,000 lbs., 25x38—90; flat, cut any size, min. width 24 ins., max. width 48 ins., max. length 56 ins.; min. order, 20,000 lbs.

Stanford Paper Sales Corp.	13.35c
Marquette Paper Co.	12.48
Barton Duer & Koch Paper Co.	13.10
* Wilcox-Walter-Furlong Paper Co.	12.44
Walker Goulard Plehn Co.	12.91

Machine-Finish Book End Paper

No. 16—25,000 lbs., 25x38—160; flat, cut 38x50 ins.; the grain to run the 38-inch way of the sheet; min. order, 20,000 lbs.

Bermingham & Prosser Co.	13.25
Barton Duer & Koch Paper Co.	13.35
* Paper Corp. of U. S.	12.37
Wilcox-Walter-Furlong Paper Co.	12.60
Walker Goulard Plehn Co.	12.91

Offset Book

No. 17—415,000 lbs., 25x38—80; flat, cut any size, min. width 24 ins., max. width 48 ins.; the grain to run lengthwise of the sheet; min. order, 40,000 lbs.

Bermingham & Prosser Co.	14.95c
* Walker Goulard Plehn Co. (100,000 lbs.)	13.51
* Walker Goulard Plehn Co. (50,000 lbs.)	13.63
* Walker Goulard Plehn Co. (50,000 lbs.)	13.73
* Walker Goulard Plehn Co. (100,000 lbs.)	13.97
* Walker Goulard Plehn Co. (115,000 lbs.)	14.13

No. 18—4,600,000 lbs., 25x38—100; flat, cut any size, min. width 24 ins., max. width 48 ins.; the grain to run lengthwise of the sheet; min. order, 40,000 lbs.

R. P. Andrews Paper Co. (500,000 lbs. only)	13.32c
Whitaker Paper Co. (1,000,000 lbs. only)	13.55
Bermingham & Prosser Co. (500,000 lbs. only)	13.45

* Stanford Paper Sales Corp..... 12.17
(500,000 lbs. only)
* Stanford Paper Sales Corp..... 12.24
(1,000,000 lbs. only)
Stanford Paper Sales Corp..... 12.40
(500,000 lbs. only)
Mudge Paper Co..... 13.55
(250 tons only)
* Frank Parsons Paper Co., Inc.... 11.75
(700,000 lbs. only)
* Frank Parsons Paper Co., Inc..... 11.927
(700,000 lbs. only)
* Frank Parsons Paper Co., Inc..... 11.97
(700,000 lbs. only)
* Frank Parsons Paper Co., Inc..... 12.17
(700,000 lbs. only)
Fitchburg Paper Co..... 14.85
(800,000 lbs. only)
Fitchburg Paper Co..... 15.10
(400,000 lbs. only)
Central Ohio Paper Co..... 12.83
(500,000 lbs. only)
* Walker Goulard Plehn Co..... 12.13
(1,000,000 lbs.)
Walker Goulard Plehn Co..... 12.46
(1,000,000 lbs.)
Walker Goulard Plehn Co..... 12.64
(500,000 lbs.)
Walker Goulard Plehn Co..... 12.73
(500,000 lbs.)
Walker Goulard Plehn Co..... 12.82
(500,000 lbs.)
Walker Goulard Plehn Co..... 12.87
(500,000 lbs.)
Walker Goulard Plehn Co..... 12.91
(600,000 lbs.)

No. 19—160,000 lbs., 25x38—100; flat, cut 8x10½ ins.; the grain to run the 10½ inch way; min. order, 40,000 lbs.
Whitaker Paper Co..... 14.55c
Bermingham & Prosser Co..... 14.45
Boston Paper Board Co..... 14.72
* Walker Goulard Plehn Co..... 13.07
(80,000 lbs.)
* Walker Goulard Plehn Co..... 13.13
(80,000 lbs.)

No. 20—485,000 lbs., 25x38—120; flat, cut any size, min. width 24 ins., max. width 48 ins.; the grain to run lengthwise of the sheet; min. order, 40,000 lbs.
R. P. Andrews Paper Co..... 12.96c
Whitaker Paper Co..... 13.55
Bermingham & Prosser Co..... 13.45
Mudge Paper Co..... 13.55
(250 tons only)
* Walker Goulard Plehn Co..... 11.97

No. 21—195,000 lbs., 25x38—160; flat, cut 34½x44 and 38x53 ins.; the grain to run lengthwise of the sheet; min. order, 20,000 lbs.
Whitaker Paper Co..... 13.55c
Bermingham & Prosser Co..... 13.45
* Walker Goulard Plehn Co..... 11.97

Antique Book

No. 24—110,000 lbs., 25x38—90; flat, cut 32x42, and 38x50; min. order, 40,000 lbs.
R. P. Andrews Paper Co..... 10.04c
Whitaker Paper Co..... 13.35
Stanford Paper Sales Corp..... 11.50
Mudge Paper Sales Corp..... 12.00
* Marquette Paper Co..... 10.02
Barton Duer & Koch Paper Co.... 13.35
Wilcox-Walter-Furlong Paper Co... 11.74

No. 25—25,000 lbs., 25x38—120; flat, cut 32x42, 38x48, and 38x50 ins.; min. order, 20,000 lbs.
* R. P. Andrews Paper Co..... 10.04c
Stanford Paper Sales Corp..... 11.50
Barton Duer & Koch Paper Co.... 13.35
Wilcox-Walter-Furlong Paper Co... 11.36

50% Antique Book

No. 30—50,000 lbs., 25x38—80; flat, cut 27x40¾, 31½x46½, and 38x48 ins.; min. order, 20,000 lbs.
Howard Paper Mills (Aetna Div.) 20.48c
* Paper Corp. of U. S..... 18.82
Wilcox-Walter-Furlong Paper Co... 18.85
Walker Goulard Plehn Co..... 18.89

No. 31—20,000 lbs., 25x38—80; shall be suitable for writing on with ink; flat, cut 22¾x31 ins.; min. order, 20,000 lbs.
Howard Paper Mills (Aetna Div.) 20.48c
* Paper Corp. of U. S..... 18.82
Wilcox-Walter-Furlong Paper Co... 18.85
Walker Goulard Plehn Co..... 18.89

Water Resistant (Text) Book

No. 34—375,000 lbs., 25x38—120; flat, cut 32x42 and 35x45 ins.; the grain to run lengthwise of the sheet; min. order, 40,000 lbs.
Stanford Paper Sales Corp..... 16.48c
Howard Paper Mills (Aetna Div.) 16.23
* Paper Corp. of U. S..... 16.01
Fitchburg Paper Co..... 16.23

Supercalendered Book

No. 36—135,000 lbs., 25x38—90; flat, cut any size, min. width 24 ins.; max. width 48 ins.; min. order, 20,000 lbs.
Mudge Paper Co..... 13.10c
* Marquette Paper Co..... 11.93
Walker Goulard Plehn Co..... 12.73

No. 37—450,000 lbs., 25x38—90; rolls, 19, 28½ and 38 ins. wide, 34 ins. min., 36 ins. max. (3-inch fiber cores); min. order, 40,000 lbs.
Marquette Paper Co..... 19.47c
* Frank Parsons Paper Co., Inc..... 19.02
Walker Goulard Plehn Co..... 11.67

Coated Book

No. 39—1,170,000 lbs., 25x38—100; flat, cut any size, min. width 24 ins., max. width 48 ins.; min. order, 40,000 lbs.
* Whitaker Paper Co..... 11.50c
Frank Parsons Paper Co. Inc..... 11.825
(900,000 lbs.)
Frank Parsons Paper Co. Inc..... 12.09
(270,000 lbs.)
Walker Goulard Plehn Co..... 12.46

No. 40—235,000 lbs., 25x38—120; flat, cut any size, min. width 24 ins., max. width 48 ins.; min. order, 40,000 lbs.
* Whitaker Paper Co..... 11.50c
(Based on receiving award for Lot 39)
Frank Parsons Paper Co. Inc..... 11.825
Walker Goulard Plehn Co..... 12.07

No. 41—95,000 lbs., 25x38—100; rolls, 28½ and 38 ins. wide; diameter, 34 ins. min., 36 ins. max. (3-inch fiber cores); min. order, 40,000 lbs.
* Whitaker Paper Co..... 10.45c
(Based on receiving award for Lot 39)
Walker Goulard Plehn Co..... 10.83

Goldenrod Coated Book

No. 42—8,000 lbs., 25x38—160; flat, cut 38x50 and 42x58 ins.; min. order, 2,000 lbs.
Whitaker Paper Co..... 19.83c
* Bermingham & Prosser Co..... 19.69
Mudge Paper Co..... 19.95

No 43—105,000 lbs., 25x38 –140; flat, cut 32x42, 38x48, 39x50 ins.; grain: size 32x42 ins. to run the 42 inch way; other sizes to run the short way; min. order, 40,000 lbs.
Walker Goulard Plehn Co..... 16.59c
(Rejected)

Litho Coated Book

No. 46—180,000 lbs., 25x38—140; flat, cut 32x42 35x45. 38x48, 39x50, and 41x52 ins.; the grain to run lengthwise of the sheet; min. order, 20,000 lbs.
Walker Goulard Plehn Co..... 16.06c
* Mead Sales Co..... 15.55

Chemical Wood Mimeographed White and Colored

No. 50—240,000 lbs., white, No. 40; flat, cut 28½x34½, 32½x42½, 38x48½. Grain: size 28½x34½ ins. to run the 28½ inch way; size 32½x42½ ins. to run the 42½ inch way; size 38x48½ ins. to run the 38 inch way; min. order, 40,000 lbs.
* R. P. Andrews Paper Co..... 10.59c
Stanford Paper Sales Corp..... 11.50
Mudge Paper Co..... 12.72
Frank Parsons Paper Co. Inc..... 11.56
Barton Duer & Koch Paper Co.... 13.25
Walker Goulard Plehn Co..... 11.92

No. 51—390,000 lbs., No. 40; flat, cut 8x10½ ins.; grain 10½ inch way; min. order, 40,000 lbs.
* R. P. Andrews Paper Co..... 11.49c
Cauthorne Paper Co..... 12.68
(225,000 lbs. only)
Boston Paper Board Co..... 11.97
Barton Duer & Koch Paper Co.... 14.15
Wilcox-Walter-Furlong Paper Co... 11.58
Walker Goulard Plehn Co..... 12.91

No. 52—50,000 lbs., blue, buff, green, pink and yellow No. 40; flat, cut 32½x42½, and 38x48½ ins. Grain: size 32½x42½ ins. to run the 42½ inch way; size 38x48½ ins. to run the 38 inch way; min. order, one color, 10,000 lbs.
Eastern Corp..... 14.20c
* Walker Goulard Plehn Co..... 14.17

25% Mimeograph

No. 55—95,000 lbs., No. 40; flat, cut 28½x34½, 32½x42½, 38x48½, and 40½x42½ ins. Grain: size 28½x34½ ins. to run the 28½ inch way; size 32½x42½ ins. and 40½x42½ ins. to run the 42½ inch way; size 38x48½ ins. to run the 38 inch way; min. order, 20,000 lbs.
Whitaker Paper Co..... 23.60c
* Howard Paper Mills Inc.
(Aetna Div.)..... 13.93
Frank Parsons Paper Co. Inc..... 15.25
Paper Corp of U. S..... 14.23
Walker Goulard Plehn Co..... 14.33

No. 54—50,000 lbs., No. 40; flat, cut 8x10½ ins.; grain 10½ inch way; min. order, 20,000 lbs.
Whitaker Paper Co..... 24.60c
Stanford Paper Sales Corp..... 15.20
* Howard Paper Mills Inc.
(Aetna Div.)..... 14.33
Frank Parsons Paper Co. Inc..... 15.50
Paper Corp. of U. S..... 15.01
Walker Goulard Plehn Co..... 15.07

Duplicator Copy Paper Liquid Process, White and Colored

No. 57—225,000 lbs., white, No. 40; flat, cut 32x42, 34x44 and 40x52½ ins.; the grain to run lengthwise of the sheet; min. order, 40,000 lbs.
* Eastern Corp..... 13.91c
Walker Goulard Plehn Co..... 13.97

No. 58—110,000 lbs., No. 40; flat, cut 8x10½ ins; grain 10½ inch way; min. order, 40,000 lbs.
* Eastern Corp..... 14.41c
Walker Goulard Plehn Co..... 14.65
Boston Paper Board Co..... 14.97

No. 59—30,000 lbs., pink, yellow, green and blue, No. 40 flat, cut 32x42, 34x44 and 40x52½ ins.; the grain to run lengthwise of the sheet; min. order, 10,000 lbs.
* Eastern Corp..... 16.29c
Walker Goulard Plehn Co..... 17.30

Chemical Wood Writing White and Colored

No. 61—230,000 lbs., white, No. 26; flat, cut any size, min. width 21 ins.; max. width 48 ins.; min. order, 40,000 lbs.
Eastern Corp..... 13.98
* Frank Parsons Paper Co., Inc..... 12.66
Paper Corp. of U. S..... 12.80
Wilcox-Walter-Furlong Paper Co... 14.81
Walker Goulard Plehn Co..... 13.63

No. 62—3,000,000 lbs., white, No. 32; flat, cut any size, min. width 21 ins., max. width 48 ins.; min. order, 40,000 lbs.
* R. P. Andrews Paper Co..... 10.84c
(600,000 lbs. only)
R. P. Andrews Paper Co..... 11.84
(300,000 lbs. only)
Whitaker Paper Co..... 13.95
(600,000 lbs. only)
* Stanford Paper Sales Corp..... 10.93
(500,000 lbs. only)
Eastern Corp..... 12.84
(200 tons only)
* Frank Parsons Paper Co., Inc..... 10.90
(1,400,000 lbs. only)
* Frank Parsons Paper Co., Inc..... 11.07
(1,100,000 lbs. only)
Barton Duer & Koch Paper Co.... 14.20
(250 tons only)
Paper Corp. of U. S..... 12.15
Walker Goulard Plehn Co..... 11.98
(500,000 lbs.)
Walker Goulard Plehn Co..... 12.17
(500,000 lbs.)
Walker Goulard Plehn Co..... 12.21
(500,000 lbs.)
Walker Goulard Plehn Co..... 12.26
(500,000 lbs.)
Walker Goulard Plehn Co..... 12.31
(500,000 lbs.)
Walker Goulard Plehn Co..... 12.37
(500,000 lbs.)

No. 64—2,130,000 lbs., No. 40; flat, cut any size, min. width, 21 ins., max. width 48 ins.; min. order, 40,000 lbs.
* R. P. Andrews Paper Co..... 10.54c
(600,000 lbs. only)
R. P. Andrews Paper Co..... 11.54
(300,000 lbs. only)
Whitaker Paper Co..... 13.35
(600,000 lbs. only)
Bermingham & Prosser Co..... 11.90
(500,000 lbs. only)
* Stanford Paper Sales Corp..... 10.63
(500,000 lbs. only)
Stanford Paper Sales Corp..... 10.91
(500,000 lbs. only)
Mudge Paper Co..... 14.61
(400 tons only)
Eastern Corp..... 12.54
(200 tons only)
* Frank Parsons Paper Co., Inc..... 10.71
(500,000 lbs. only)
* Frank Parsons Paper Co., Inc..... 10.8475
(900,000 lbs. only)
Barton Duer & Koch Paper Co..... 13.60
(250 tons only)
Walker Goulard Plehn Co..... 11.92
(500,000 lbs.)
Walker Goulard Plehn Co..... 12.09
(500,000 lbs.)
Walker Goulard Plehn Co..... 12.14
(500,000 lbs.)
Walker Goulard Plehn Co..... 12.19
(630,000 lbs.)

No. 65—135,000 lbs., white, No. 40; flat, cut 8x10½ ins.; min. order, 40,000 lbs.
* Bulkley Dunton Paper Co..... 12.40c
Eastern Corp..... 13.54
Walker Goulard Plehn Co..... 12.47
(80,000 lbs.)
Walker Goulard Plehn Co..... 12.73
(55,000 lbs.)

No. 66—225,000 lbs., white, No. 32; rolls, min. width 16 ins., max. width 48 ins., diameter 34 ins. min., 36 ins. max. (3-inch fiber cores); min. order, 20,000 lbs.
R. P. Andrews Paper Co..... 12.10c
Stanford Paper Sales Corp..... 10.79
Eastern Corp..... 12.59
* Frank Parsons Paper Co., Inc..... 9.80
Barton Duer & Koch Paper Co... 13.15
Walker Goulard Plehn Co..... 10.93

No. 67—60,000 lbs., white, No. 32; rolls, min. width 21 ins., max. width 46 ins.; diameter, 37 ins. min., 39 ins. max. (returnable 3-inch iron or metal-capped fiber cores); min. order, 20,000 lbs.
* Stanford Paper Sales Corp..... 10.79c
Eastern Corp..... 13.34
Walker Goulard Plehn Co..... 10.93

No. 68—235,000 lbs., white, No. 40; rolls, min. width 16 ins., max. width 48 ins.; diameter 34 ins. min., 36 ins. max. (3-inch fiber cores); min. order, 20,000 lbs.
R. P. Andrews Paper Co..... 11.51c

Stanford Paper Sales Corp..... 10.55
Eastern Corp. 11.99
Barton Duer & Koch Paper Co..... 12.55
* Walker Goulard Plehn Co..... 10.48

No. 69—100,000 lbs., No. 40; rolls, min. width 21 ins., max. width 46 ins.; diameter, 37 ins. min., 59 ins. max. (returnable 3-inch iron or metal-capped fiber cores); min. order, 20,000 lbs.
Stanford Paper Sales Corp..... 10.55c
Eastern Corp. 12.74
* Walker Goulard Plehn Co..... 10.48

No. 70—30,000 lbs., blue, buff, green, pink, salmon and yellow, No. 26; flat, cut any size, min. width 21 ins., max. width 48 ins.; min. order, one color, 10,000 lbs.
* Paper Corp. of U. S..... 13.75c
Walker Goulard Plehn Co..... 15.07

No. 71—470,000 lbs., blue, buff, green, pink, salmon and yellow, No. 32; flat, cut any size, min. width 21 ins., max. width 48 ins.; min. order, one color, 10,000 lbs.
* Eastern Corp. 12.72c
Paper Corp. of U. S. 13.10
Walker Goulard Plehn Co..... 13.36

No. 72—420,000 lbs., blue, buff, green, pink, salmon and yellow, No. 40; flat, cut any size, min. width 21 ins., max. width 48 ins.; min. order, one color, 10,000 lbs.
* Eastern Corp. 12.12c
Walker Goulard Plehn Co..... 13.09

No. 74—60,000 lbs., white, No. 32; rolls, 36 ins. wide; diameter, 34 ins. min., 36 ins. max. (3-inch fiber cores); min. order, 40,000 lbs.
* Eastern Corp. 12.19c
Walker Goulard Plehn Co..... 12.73

No. 76—40,000 lbs., white, No. 24; rolls, 22 ins. wide; diameter, 34 ins. min., 36 ins. max. (3-inch fiber cores); min. order, 40,000 lbs.
Frank Parsons Paper Co. Inc..... 14.05c
* Walker Goulard Plehn Co..... 12.91

No. 78—20,000 lbs., blue, green, pink, yellow, buff, cherry, and salmon, No. 24; rolls, 22 ins. wide.; diameter, 34 ins. min., 36 ins. max. (3-inch fiber cores); min. order, 10,000 lbs.

50% Lithographed-Finish Map

No. 83—40,000 lbs., No. 32; flat, cut any size, min. width 22 ins., max. width 48 ins.; the grain to run lengthwise of the sheet; min. order, 10,000 lbs.
Stanford Paper Sales Corp..... 19.52c
Howard Paper Mills Inc.
(Aetna Div.) 19.58
Barton Duer & Koch Paper Co.... 21.20
* Paper Corp. of U. S..... 18.74

No. 84—30,000 lbs., No. 40; flat, cut any size, min. width 22 ins., max. width 48 ins.; the grain to run lengthwise of the sheet; min. order, 10,000 lbs.
Stanford Paper Sales Corp..... 18.92
Howard Paper Mills Inc.
(Aetna Div.) 19.38
Barton Duer & Koch Paper Co.... 21.20
* Paper Corp. of U. S..... 18.48

No. 86—169,550 lbs., No. 56; flat, cut any size, min. width 22 ins., max. width 48 ins.; the grain to run lengthwise of the sheet; min. order, 10,000 lbs.
Stanford Paper Sales Corp..... 18.32c
Howard Paper Mills Inc.
(Aetna Div.) 18.82
Old Dominion Paper Co..... 21.00
Barton Duer & Koch Paper Co.... 20.20
* Paper Corp. of U. S..... 17.59

High Wet Strength Map

No. 88—273,000 lbs., No. 48; flat, cut any size, min. width 22 ins., max. width 48 ins.; the grain to run lengthwise of the sheet, unless otherwise specified (omit ream markers); min. order, 10,000 lbs
Stanford Paper Sales Corp..... 17.75c
Howard Paper Mills Inc.
(Aetna Div.) 16.43
Barton Duer & Koch Paper Co.... 17.43
* Paper Corp. of U. S..... 15.37
(100,000 lbs.)
* Paper Corp. of U. S. 15.73
(Balance)
Fitchburg Paper Co..... 15.87
(75,000 lbs.)
Fitchburg Paper Co..... 16.22
(Balance)
Walker Goulard Plehn Co..... 17.41

Chemical Wood Manifold White and Colored

No. 97—210,000 lbs., No. 18; flat, cut 21x32, 28x34, 32x42, and 34x44 ins.; min. order, 10,000 lbs.
* Frank Parsons Paper Co., Inc.... 14.17c
Whitaker Paper Co..... 16.00
Walker Goulard Plehn Co..... 15.21

No. 98—35,000 lbs., No. 18; flat, cut 8x10½ ins.; min.order, 10,000 lbs.
Whitaker Paper Co..... 16.50c
* Frank Parsons Paper Co., Inc.... 15.19
Walker Goulard Plehn Co..... 16.81

No. 100—25,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No. 18; flat, cut 28x34, 32x42 and 34x44 ins.; min. order, one color, 5,000 lbs.
Whitaker Paper Co..... 16.50c
(Rejected)
* Walker Goulard Plehn Co..... 16.91

50% Manifold, White and Colored

No. 101—10,000 lbs., No. 14; flat, cut 32x42 ins.; min. order, 10,000 lbs.
* Barton Duer & Koch Paper Co.... 30.39c

No. 102—40,000 lbs., white, No. 18; flat, cut 21x32, 28x34, 32x42, and 34x44 ins.; min. order, 10,000 lbs.
R. P. Andrews Paper Co..... 31.21c
* Old Dominion Paper Co..... 23.50
Barton Duer & Koch Paper Co.... 24.44
Paper Corp. of U. S..... 28.01
Walker Goulard Plehn Co..... 27.47

No. 103—20,000 lbs., No. 18; flat, cut 8x10½ ins.; min. order, 10,000 lbs.
R. P. Andrews Paper Co..... 32.21c
* Barton Duer & Koch Paper Co.... 25.44
Paper Corp. of U. S..... 29.07
Walker Goulard Plehn Co..... 28.97

No. 104—25,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No. 18; flat, cut 28x34, 32x42, and 34x44 ins.; min. order, one color, 5,000 lbs.
* Old Dominion Paper Co..... 24.6999c
Barton Duer & Koch Paper Co... 25.44
Paper Corp. of U. S..... 31.00

50% White Glazed Manifold

No. 106—20,000 lbs., No. 16; flat, cut 32x42 ins.; min. order, 15,000 lbs.
Barton Duer & Koch Paper Co..... 31.99c
* Paper Corp. of U. S..... 31.83
Wilcox-Walter-Furlong Paper Co. 31.88

Chemical Wood Bond, White

No. 112—190,000 lbs., white, No. 40; flat, cut any size, min. width 21 ins., max. width 48 ins.; min. order, 40,000 lbs.
* R. P. Andrews Paper Co..... 12.37c
Stanford Paper Sales Corp..... 13.63
Eastern Corp. 13.47
Walker Goulard Plehn Co..... 12.51

Chemical Wood White Mimeograph Bond

No. 113—60,000 lbs., No. 40; flat, cut 32½x42½ and 40½x53 ins.; the grain to run lengthwise of the sheet; min. order, 20,000 lbs.
Walker Goulard Plehn Co..... 13.23c
* Eastern Corp. 12.82

25% Bond, White and Colored

No. 114—45,000 lbs., No. 26; flat, cut any size, min. width 21 ins., max. width 48 ins.; min. order, 10,000 lbs.
Stanford Paper Sales Corp..... 20.73c
Mudge Paper Co. 19.89
Howard Paper Mills Inc.
(Aetna Div.) 19.68
Barton Duer & Koch Paper Co.... 18.86
* Paper Corp. of U. S..... 18.60
Walker Goulard Plehn Co..... 19.29

No. 116—445,000 lbs., No. 32; flat, cut any size, min. width 21 ins., max. width 48 ins.; min. order, 20,000 lbs.
Bermingham & Prosser Co..... 16.24c
(100,000 lbs. only)
Bermingham & Prosser Co..... 16.44
(100,000 lbs. only)
Stanford Paper Sales Corp..... 16.83
Howard Paper Mills Inc.
(Aetna Div.) 16.37
(250,000 lbs.)
Howard Paper Mills Inc.
(Aetna Div.) 16.67
(Balance)
* Paper Corp. of U. S..... 15.30
Walker Goulard Plehn Co..... 17.18

No. 117—15,000 lbs., No. 32; flat, cut 8x10½ ins.; min. order, 10,000 lbs.
Stanford Paper Sales Corp..... 17.83c
Howard Paper Mills Inc.
(Aetna Div.) 17.87
* Paper Corp. of U. S..... 16.84
Walker Goulard Plehn Co..... 18.18

No. 118—480,000 lbs., No. 40; flat, cut any size, min. width 21 ins., max. width 48 ins.; min. order, 20,000 lbs.
Howard Paper Mills Inc.
(Aetna Div.) 15.01c
(250,000 lbs.)
Howard Paper Mills Inc.
(Aetna Div.) 15.31
(Balance)
* Paper Corp. of U. S..... 14.30
Walker Goulard Plehn Co..... 16.18

No. 119—85,000 lbs., No. 40; flat, cut 8x10½ ins.; min. order, 20,000 lbs.
Howard Paper Mills Inc.
(Aetna Div.) 16.56c
* Paper Corp. of U. S..... 15.38
Walker Goulard Plehn Co..... 17.18

No. 120—20,000 lbs., No. 32; rolls, 21, 22, and 26 ins. wide; diameter 34 ins. min., 36 ins. max. (3-inch fiber cores); min. order, 10,000 lbs.
Stanford Paper Sales Corp..... 16.33c
Howard Paper Mills Inc.
(Aetna Div.) 15.54
Barton Duer & Koch Paper Co.... 16.69
* Paper Corp of U. S..... 15.26
Walker Goulard Plehn Co..... 16.92

No. 123—5,000 lbs., blue, buff, cherry, green, pink, salmon, and yellow, No. 32; flat, cut any size, min. width 21 ins., max. width 48 ins.; min. order, one color, 10,000 lbs.
Howard Paper Mills Inc.
(Aetna Div.) 21.68c
* Paper Corp. of U. S..... 19.60
Walker Goulard Plehn Co..... 27.95

No. 124—80,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No. 32; flat, cut any size, min. width 21 ins., max. width 48 ins.; min. order, one color, 10,000 lbs.
Stanford Paper Sales Corp..... 17.43c
Mudge Paper Co..... 16.99
Howard Paper Mills Inc.
(Aetna Div.) 16.63
* Paper Corp. of U. S..... 16.09
Walker Goulard Plehn Co..... 18.18

No. 125—50,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No. 40; flat, cut any size, min. width 21 ins., max. width 48 ins.; min. order, one color, 10,000 lbs.
Stanford Paper Sales Corp. 16.83c
Howard Paper Mills Inc.
(Aetna Div.) 15.86
* Paper Corp. of U. S..... 15.30
Walker Goulard Plehn Co..... 17.18

25% Opacified Bond Paper

No. 128—40,000 lbs., No. 32; flat, cut 32x42, 38x48 and 38x49½ ins.; min. order, 40,000 lbs.
Mudge Paper Co..... 18.99c
Howard Paper Mills Inc.
(Aetna Div.) 19.37
Barton Duer & Koch Paper Co..... 18.77
* Paper Corp. of U. S. 18.62
Wilcox-Walter-Furlong Paper Co... 22.68

No. 129—25,000 lbs., buff, No. 32; flat, cut 41x56 ins.; grain long; min. order, 20,000 lbs.
* Howard Paper Mills Inc.
(Aetna Div.) 20.12c
Paper Corp. of U. S..... 20.51
Wilcox-Walter-Furlong Paper Co... 22.68

50% White Bond

No. 131—15,000 lbs., No. 40; flat, cut any size, min. width 21 ins., max. width 34 ins.; min. order, 10,000 lbs.
Stanford Paper Sales Corp. 20.45c
Howard Paper Mills Inc.
(Aetna Div.) 21.03
Old Dominion Paper Co..... 23.49
* Barton Duer & Koch Paper Co..... 19.49
Paper Corp. of U. S..... 19.56
Wilcox-Walter-Furlong Paper Co... 25.33
Walker Goulard Plehn Co. 23.17

100% White Bond

No. 134—10,000 lbs., No. 40; flat, cut any size, min. width 16 ins., max. width 38 ins.; min. order, 2,000 lbs.
R. P. Andrews Paper Co..... 39.00c
Barton Duer & Koch Paper Co..... 37.92
Paper Corp. of U. S..... 44.84
* Walker Goulard Plehn Co..... 37.12

No. 135—2,000 lbs., No. 64; flat, cut 34x44 ins.; min. order, 2,000 lbs.
* R. P. Andrews Paper Co..... 43.00c

Chemical Wood White Ledger

No. 150—170,000 lbs., No. 48; flat, cut any size, min. width 17 ins., max. width 48 ins.; min. order, 20,000 lbs.
* R. P. Andrews Paper Co..... 12.71c
Whitaker Paper Co..... 16.10
Eastern Corp. 14.14
Wilcox-Walter-Furlong Paper Co... 13.33
Walker Goulard Plehn Co..... 13.18

No. 151—65,000 lbs., No. 64; flat, cut any size, min. width 17 ins., max. width 48 ins.; min. order, 10,000 lbs.
Whitaker Paper Co..... 16.10c
Eastern Corp. 14.14
Wilcox-Walter-Furlong Paper Co... 13.33
* Walker Goulard Plehn Co..... 12.91

No. 155—65,000 lbs., No. 88; flat, cut any size, min. width 17 ins., max. width 48 ins.; min. order 10,000 lbs.
Eastern Corp. 14.14c
* Wilcox-Walter-Furlong Paper Co... 13.33
Walker Goulard Plehn Co..... 13.44

25% Ledger, White and Colored

No. 154—125,000 lbs., white, No. 48; flat, cut 28x34, 32x42, 34x44, and 38x48 ins.; min. order, 10,000 lbs.
Howard Paper Mills Inc.
(Aetna Div.) 15.09c
* Paper Corp. of U. S..... 14.30
Walker Goulard Plehn Co..... 15.88

No. 155—135,000 lbs., white, No. 64; flat, cut 28x34, 32x42, 34x44, and 38x48 ins.; min. order, 10,000 lbs.
Howard Paper Mills Inc.
(Aetna Div.) 15.09c
* Paper Corp. of U. S..... 14.30
Walker Goulard Plehn Co..... 15.88

No. 156—20,000 lbs., No. 88; flat, cut 28x34, 32x42, 34x44 and 38x48 ins.; min. order, 10,000 lbs.
Howard Paper Mills Inc.
(Aetna Div.) 15.94
* Paper Corp. of U. S..... 14.30
Walker Goulard Plehn Co..... 15.88

No. 157—60,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No. 64; flat, cut 34x44 ins.; min. order, one color, 10,000 lbs.
Howard Paper Mills Inc.

(Aetna Div.) 15.79c
Barton Duer & Koch Paper Co..... 17.15
* Paper Corp. of U. S..... 15.27
Walker Goulard Plehn Co..... 16.48

No. 158—10,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No. 88; flat, cut 34x44 ins.; min. order, one color, 10,000 lbs.
Howard Paper Mills Inc.
(Aetna Div.) 17.69c
Barton Duer & Koch Paper Co... 17.28
* Paper Corp. of U. S..... 15.84
Walker Goulard Plehn Co..... 16.48

100% White Ledger

No. 176—4,000 lbs., No. 48; flat, cut 28x34, 32x42, and 34x44 ins.; min. order, 4,000 lbs.
R. P. Andrews Paper Co..... 37.12c
* Barton Duer & Koch Paper Co..... 36.26
Paper Corp. of U. S..... 41.00
Walker Goulard Plehn Co..... 37.20

No. 177—10,000 lbs., No. 64; flat, cut 28x34, 32x42, and 34x44 ins.; min. order, 10,000 lbs.
R. P. Andrews Paper Co..... 36.74c
* Barton Duer & Koch Paper Co.... 36.26
Paper Corp. of U. S..... 41.00
Walker Goulard Plehn Co..... 36.93

No. 178—5,000 lbs., No. 88; flat, cut 22¼x31 and 34x44 ins.; min. order, 5,000 lbs.
R. P. Andrews Paper Co..... 36.48c
* Barton Duer & Koch Paper Co..... 36.26
Paper Corp. of U. S..... 41.00
Walker Goulard Plehn Co..... 37.12

Chemical Wood, White and Colored Index

No. 182—390,000 lbs., white, 25½x30½—220; flat, cut 32x42 and 34x44, and 39x50 ins., with projecting colored-paper marker between each 100 sheets; min. order, 10,000 lbs.
R. P. Andrews Paper Co..... 15.00c

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Whitaker Paper Co..... 12.90
* Stanford Paper Sales Corp..... 11.69
Old Dominion Paper Co..... 12.377
(100,000 lbs. only)
Frank Parsons Paper Co. Inc..... 11.635
(Rejected)
Wilcox-Walter-Furlong Paper Co... 12.60
Walker Goulard Plehn Co..... 12.61

No. 183—30,000 lbs., single-ply, 25½x30½—280; flat, cut 34x44 ins., with projecting colored paper marker between each 100 sheets; min. order, 10,000 lbs.
R. P. Andrews Paper Co..... 14.34c
Stanford Paper Sales Corp..... 12.69
Frank Parsons Paper Co. Inc..... 13.45
* Wilcox-Walter-Furlong Paper Co... 12.60
Walker Goulard Plehn Co..... 12.73

No. 184—10,000 lbs., white, single-ply, 25½x30½—340; flat, cut 34x44 ins., with projecting colored-paper marker between each 100 sheets; min. order, 10,000 lbs.
R. P. Andrews Paper Co..... 14.34c
* Frank Parsons Paper Co. Inc..... 13.75
Walker Goulard Plehn Co..... 15.00

No. 185—80,000 lbs., buff, single-ply, 25½x30½—220; flat, cut 32x42 ins., with projecting colored-paper marker between each 100 sheets; min. order, 20,000 lbs.
R. P. Andrews Paper Co..... 15.17c
Whitaker Paper Co..... 13.90
Frank Parsons Paper Co. Inc..... 14.30
* Wilcox-Walter-Furlong Paper Co... 12.91
Walker Goulard Plehn Co..... 13.18

50% Index, White and Colored

No. 188—65,000 lbs., white, 25½x30½—220; flat, cut 32x42, 32x48, and 34x44 ins., with projecting colored-paper marker between each 100 sheets; min. order, 10,000 lbs.
Howard Paper Mills Inc.
(Aetna Div.) 17.08c
Frank Parsons Paper Co. Inc..... 19.00
Barton Duer & Koch Paper Co.... 18.70
* Paper Corp. of U. S..... 16.00
Walker Goulard Plehn Co..... 16.33

No. 189—20,000 lbs., white, single-ply, 25½x30½—280; flat, cut 32x42 and 34x44 ins., with projecting colored-paper marker between each 100 sheets; min. order, 10,000 lbs.
Barton Duer & Koch Paper Co..... 18.90c
Paper Corp. of U. S..... 17.40
* Walker Goulard Plehn Co..... 17.14

No. 190—10,000 lbs., white, 25½x30½—340; flat, cut 34x44 ins., with projecting colored paper marker between each 100 sheets; min. order, 10,000 lbs.
Paper Corp. of U. S..... 24.38c
* Walker Goulard Plehn Co..... 20.14

No. 192—125,000 lbs., blue, buff, cherry, fawn, green, pink, salmon and yellow; 25½x30½—220; flat, cut 32x42 and 34x44 ins., with projecting colored-paper marker between each 100 sheets; min. order, one color, 10,000 lbs.
Howard Paper Mills Inc.
(Aetna Div.) 17.58c
Frank Parsons Paper Co. Inc..... 19.00
Barton Duer & Koch Paper Co.... 19.40
* Paper Corp. of U. S..... 16.48
Walker Goulard Plehn Co..... 16.83

No. 193—10,000 lbs., blue, buff, cherry, fawn, green, pink, salmon and yellow; 25½x30½—280; flat, cut 34x44 ins., with projecting colored-paper marker between each 100 sheets; min. order, one color, 5,000 lbs.
Paper Corp. of U. S..... 19.64c
* Walker Goulard Plehn Co..... 19.44

100% Cream-White Index

No. 196—40,000 lbs., single-ply, 25½x30½—250; flat, cut 20¼x30 ins.; the grain to run the 20¼-inch way of the sheet; min. order, 20,000 lbs.
R. P. Andrews Paper Co..... 36.08c
Barton Duer & Koch Paper Co..... 34.47
Barton Duer & Koch Paper Co..... 35.47
Paper Corp. of U. S..... 41.00
* Walker Goulard Plehn Co..... 35.07

Coated Cover, White and Colored

No. 200—25,000 lbs., white, 20x26—120; flat, cut 26½x41 and 34x44 ins.; the grain to run lengthwise of the sheet; min. order, 10,000 lbs.
Bermingham & Prosser Co..... 16.69c
(Rejected)

Antique-Finish Cover, White and Colored

No. 202—80,000 lbs., 20x26—100; flat, cut 25¼x39 and 34x44 ins.; the grain to run lengthwise of the sheet; min. order, 20,000 lbs.
* Wilcox-Walter-Furlong Paper Co... 12.27c
Walker Goulard Plehn Co..... 12.91

No. 203—95,000 lbs., 20x26—100; blue, buff, dawn, quaker drab, terra cotta, gray, brown, green, gobelin blue, granite, tea, and canary; flat, cut 25¼x39 and 34x44 ins.; min. order, one color, 10,000 lbs.
* Frank Parsons Paper Co., Inc..... 15.50c
Walker Goulard Plehn Co..... 15.70

Cloth Lined Cover, White and Colored

No. 205—5,000 sheets, 20x26—72; flat, cut 36x38 ins.; min. order, one color, 5,000 sheets.
* Stanford Paper Sales Corp..... $389.95
(per M sheets)

50% Laid Antique-Finish Cover, Colored

No. 206—25,000 lbs., blue, cream, white, gray, and green; 20x26—130; flat, cut 25¼x39 and 34x44 ins.; the grain to run lengthwise of the sheet; the laid lines to run the short direction of the sheet; mm. order, one color, 5,000 lbs.
Catherine Paper Co..... 22.00c
* Frank Parsons Paper Co., Inc..... 19.48
Paper Corp. of U. S..... 19.86
Walker Goulard Plehn Co..... 26.50

Wood Manila

No. 208—195,000 lbs., 24x36—80; flat, cut 25x38, 32x42, and 40x52½ ins.; mm. order, 20,000 lbs.
Whitaker Paper Co..... 10.20c
(Receiving minimum of 40,000 for one delivery)
Bermingham & Prosser Co..... 10.75
Stanford Paper Sales Corp..... 09.70
Boston Paper Board Co..... 09.97
* Frank Parsons Paper Co., Inc..... 8.95
Barton Duer & Koch Paper Co..... 9.24
Walker Goulard Plehn Co..... 10.07

Chemical Wood Manila

No. 213—16,000 lbs., 24x36—140; flat, cut 32x42 ins.; min. order, 10,000 lbs.
* Mudge Paper Co..... 16.85c
Walker Goulard Plehn Co..... 18.60

No. 214—10,000 lbs., 24x36—160; flat, cut 28x38, and 40x52½ ins.; min. order, 10,000 lbs.
Mudge Paper Co..... 16.85c
(Rejected)
* Walker Goulard Plehn Co..... 18.60

Rope Manila

No. 215—5,000 lbs., 24x36—160; rolls, 48 ins. wide; diameter 28 ins. min., 30 ins. max. (3-inch fiber cores); min. order, 5,000 lbs.
* R. P. Andrews Paper Co..... 31.00c
Paper Corp. of U. S..... 33.50

Drumhead Manila

No. 217—5,000 lbs., 24x36—280; flat, cut 32x42 ins.; min. order, 5,000 lbs.
* R. P. Andrews Paper Co..... 31.00c
Paper Corp. of U. S..... 34.14

No. 2 Kraft

No. 218—30,000 lbs., 24x36—80; flat, cut any size, max. length 56 ins., in bundles wrapped and tied; min. order, 10,000 lbs.
No. 218—25,000 lbs., 24x36—100; flat, cut any size, max. length 56 ins., in bundles wrapped and tied; min. order, 10,000 lbs.
No. 218—30,000 lbs., 24x36—120; flat, cut any size, max. length 56 ins., in bundles wrapped and tied; min. order, 10,000 lbs.

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No. 218—20,000 lbs., 24x36—140; flat, cut any size, max. length 56 ins., in bundles wrapped and tied; min. order, 10,000 lbs.

Cauthorne Paper Co.	* 8.14c
	7.89
	7.88
	* 7.87
Frank Parsons Paper Co. Inc.	8.23
	* 7.74
	* 7.74
	8.2[illegible]

No. 219—15,000 lbs., 24x36—100; cut any size, folded (25 sheets per fold), in wrapped bundles; min. order, 5,000 lbs.

No. 219—15,000 lbs., 24x36—120; cut any size, folded (25 sheets per fold), in wrapped bundles; min. order, 5,000 lbs.

Cauthorne Paper Co.	8.14c
	8.14
* Frank Parsons Paper Co., Inc.	{ 7.74
	{ 7.74

No. 220—25,000 lbs., 24x36—80; 9 and 11 ins. wide, min. 28 ins., max. 30 ins. in diameter; rolls, wound on wooden plugs 1½-inch hole, or on 3-inch fiber core as may be specified with the order; min. order, 5,000 lbs.

No. 220—20,000 lbs., 24x36—80; 12⅝ ins. wide, min. 21 ins., max. 22 ins. in diameter; rolls, wound on wooden plugs 1½-inch hole, or on 3-inch fiber core as may be specified with the order; min. order, 5,000 lbs.

No. 220—15,000 lbs., 24x36—80; 17¼ ins. wide, min. 21 ins., max. 22 ins. in diameter; rolls, wound on wooden plugs 1½-inch hole, or on 3-inch fiber core as may be specified with the order; min. order, 5,000 lbs.

No. 220—5,000 lbs., 24x36—100; 36 and 48 ins. wide, min. 28 ins., max. 30 ins. in diameter; rolls, wound on wooden plugs 1½-inch hole, or on 3-inch fiber core as may be specified with the order; min. order, 5,000 lbs.

Cauthorne Paper Co.	* 7.41c
	* 7.41
	* 7.41
	7.64
Frank Parsons Paper Co.	7.98
	7.98
	7.98
	* 7.58

White Gummed

No. 252—200,000 sheets (ungummed), No. 36; flat, cut 22x34 ins.; min. order, 25,000 sheets.

R. P. Andrews Paper Co. (per M sheets)	$24.72
Bermingham & Prosser Co. (per M sheets)	24.36
Old Dominion Paper Co. (per M sheets)	24.79
Frank Parsons Paper Co. Inc. (per M sheets)	18.73
Walker Goulard Plehn Co. (per M sheets)	18.31
* Bulkley Dunton & Co. (per M sheets)	18.27

Desk Blotting, Colored

No. 253—10,000 lbs., light green, 19x24—200; flat, cut 19x24 ins., in bundles wrapped and tied; min. order, 10,000 lbs.

R. P. Andrews Paper Co.	12.50c
Whitaker Paper Co.	12.50
Bermingham & Prosser Co.	13.00
Marquette Paper Co.	13.50
Frank Parsons Paper Co. Inc.	14.00
Walker Goulard Plehn Co.	14.97
* Hyman Viener & Co.	12.39

High-Finish Red Wallet Board

No. 255—5,000 lbs., 24x36—320; flat, cut 38x48 ins. in bundles wrapped and tied; min. order, 5,000 lbs.

* R. P. Andrews Paper Co.	14.06c
Mudge Paper Co.	14.25
Paper Corp. of U. S.	14.75

High-Finish Chemical Wood Manila Tag

No. 271—20,000 lbs., 24x36—280; flat, cut 28x34 and 38x48 ins.; min. order, 20,000 lbs.

R. P. Andrews Paper Co.	11.99c
* Paper Corp. of U. S.	11.44
Walker Goulard Plehn Co.	18.60

Jute Tag

No. 280—35,000 lbs., 22½x28½—200; flat, cut 34x44 ins.; min. order, 10,000 lbs.

R. P. Andrews Paper Co.	16.97c
* Paper Corp. of U. S.	16.90

No. 281—10,000 lbs., 22½x28½—280; flat, cut 34x44 ins.; min. order, 10,000 lbs.

R. P. Andrews Paper Co.	16.97c
* Paper Corp. of U. S.	16.90

Manila Board

No. 282—10,000 lbs., 22½x28½—400; flat, cut 22x34 ins., with projecting colored-paper marker between each 100 sheets; min. order, 10,000 lbs.

* Paper Corp. of U. S.	8.73c
Walker Goulard Plehn Co.	18.60

Railroad Board, White and Colored

No. 301—20,000 sheets, white; flat, 22x34 ins., 4-ply, each 100 sheets fully banded; min. order, 10,000 sheets.

* Walker Goulard Plehn Co. (per M sheets)	$57.03

No. 302—[illegible],000 sheets, white; flat, 22x34 ins., 8-ply, each 100 sheets fully banded; min. order, 5,000 sheets.

* Walker Goulard Plehn Co. (per M sheets)	$87.61

No. 304—10,000 sheets, ash gray, green, orange, and red; flat, 22x34 ins., 4-ply, each 100 sheets fully banded; min. order, one color, 5,000 sheets.

* Walker Goulard Plehn Co. (per M sheets)	$61.38

No. 305—5,000 sheets, buff; flat, 22x28 ins., 14-ply, each 50 sheets fully banded; min. order, one color, 5,000 sheets.

* Walker Goulard Plehn Co. (per M sheets)	$106.49

Wood Cardboard, Colored

No. 306—80,000 lbs., buff; 22½x28½—150; rolls, 20 and 23 ins. wide, 34 ins. min., 36 ins. max. (3-inch fiber cores); min. order, 40,000 lbs.

* Hyman Viener & Sons.	7.51c
Whitaker Paper Co.	8.75
Bermingham & Prosser Co.	8.25
Frank Parsons Paper Co. Inc.	9.90
Barton Duer & Koch Paper Co.	7.85
Paper Corp. of U. S.	8.73
Walker Goulard Plehn Co.	8.47

No. 307—80,000 lbs., buff; 22½x28½—150; flat, cut 32x42 ins.; min. order, 20,000 lbs.

* Hyman Viener & Sons.	8.67c
Whitaker Paper Co.	9.95
	9.75
(for carload lots—40,000 lbs. one delivery)	
Bermingham & Prosser Co.	9.75
Frank Parsons Paper Co. Inc.	11.00
Barton Duer & Koch Paper Co.	9.35
Paper Corp. of U. S.	8.73
Walker Goulard Plehn Co.	10.07

No. 308—10,000 lbs., melon; 22½x28½—184; flat, cut 20x30 ins.; min. order, 10,000 lbs.

Bermingham & Prosser Co.	10.00c
* Paper Corp. of U. S.	8.73

No. 309—55,000 lbs., blue, buff, green, melon, pink and yellow; 22½x28½—184; rolls, 20 ins. wide, 24 ins. min., 36 ins. max. (3-inch fiber cores); min. order, one color, 10,000 lbs.

* Hyman Viener & Sons.	8.67c
Bermingham & Prosser Co.	9.50
Barton Duer & Koch Paper Co.	8.98
Paper Corp. of U. S.	8.73
Walker Goulard Plehn Co.	11.92

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Their Sources, Production And Utilization

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No. 310—160,000 lbs., 22½x28½—200; flat, cut 25x38 ins. grain long, 28x38 ins. grain short, and 34x44 ins. grain long; min. order, 10,000 lbs.

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* R. P. Andrews Paper Co.	9.70c
Walker Goulard Plehn Co.	11.74

Folding Bristol, White and Colored

No. 328—10,000 lbs., white, 22½x35—220; flat, cut 34x44 ins., the grain to run lengthwise of the sheet; min. order, 10,000 lbs.

* R. P. Andrews Paper Co.	15.54c
Mudge Paper Co.	15.79
Paper Corp. of U. S.	17.62

No. 329—15,000 lbs., gray, 22½x35—300; flat, cut 35x45 ins., the grain to run lengthwise of the sheet; min. order, 10,000 lbs.

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* Mudge Paper Co.	15.82
Frank Parsons Paper Co. Inc.	17.90
Paper Corp. of U. S.	17.62

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No. 351—5,000 sheets, red; flat, cut 30x36 ins., thickness .0140 inch; min. order, 5,000 sheets.

* R. P. Andrews Paper Co. (per M sheets)	$18.85

No. 352—25,000 sheets, gray; flat, cut 29¼x34¼ ins., thickness .0300 inch; min. order, 5,000 sheets.

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* Barton Duer & Koch Paper Co. (per M sheets)	$27.33

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No. 360—225,000 lbs., 26x38; No. 100; flat, cut any size, min. width 21 ins., max. width 42 ins. (To be guillotine-trimmed square on four sides.) min. order, 10,000 lbs.

* R. P. Andrews Paper Co.	3.712c
Whitaker Paper Co.	4.046
Old Dominion Paper Co.	4.1477

Binder's Board, No. 1 Quality

No. 366—[a] 50,000 lbs., No. 1, 25¼x30¼ ins., Nos. 12, 17, 19, 21, 25, 31, and 41; flat to trim 25x30 ins. for all boards, and to trim 34x44 ins. (Nos. 12 and 21 only); min. shipment, 20,000 lbs.; min. order, any one board number, 5,000 lbs.

Barton Duer & Koch Paper Co.	6.38c

No. 367—[b] 50,000 lbs., No. 1, 25¼x30¼ ins., Nos. 21, 25, 31, and 41; flat to trim 25¾x37¾ ins.; min. order, 20,000 lbs.

R. P. Andrews Paper Co.	7.00c
Whitaker Paper Co. (Nos. 21, 25 & 31)	6.86
(No. 41)	7.36
Barton Duer & Koch Paper Co.	6.38c

Chestnut Cover Board

No. 369—[a] 50,000 lbs., 25¼x30¼ ins., Nos. 12, 17, 19, 21, 25, 31, and 41; flat to trim 25x30 ins. for all boards, and to trim 34x44 ins. (Nos. 12 and 21 only); min. shipment, 20,000 lbs.; min. order, any one board number, 5,000 lbs.

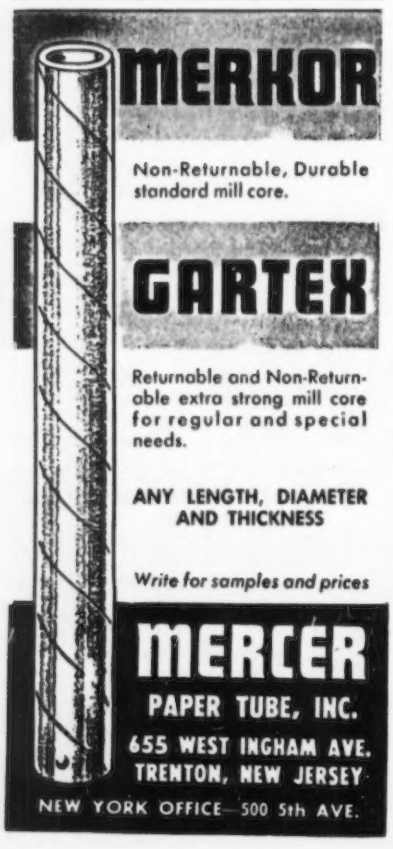
* Mead Board Sales Inc.	6.16c

No. 370—[b] 50,000 lbs., 25¼x30¼ ins., Nos. 21, 25, 31, and 41; flat, to trim 25¾x37¾ ins.; min. order, 20,000 lbs.

* Mead Board Sales Inc.	6.16c

[a] Total tonnage to be awarded on Lots 366 and/or 369 will be 50,000 pounds. Award will be made in the best interests of the Government price-wise on comparable items of either Binder's Board, No. 1 quality, or Chestnut Cover Board.

[b] Total tonnage to be awarded on Lots 367 and/or 370 will be 50,000 pounds. Award will be made in the best interests of the Government price-wise on comparable items of either Binder's Board, No. 1 quality, or Chestnut Cover Board.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Non-Returnable, Durable standard mill core.
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Returnable and Non-Returnable extra strong mill core for regular and special needs.
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AMERICAN PAPER AND PULP ASSOCIATION'S PAPER PRODUCTION RATIO REPORT

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	May 16	May 23	May 30	June 6	June 13
1953	95.3	93.9	92.0	94.0r	93.8
	May 17	May 24	May 31	June 7	June 14
1952	89.1	88.9	83.6	87.8	88.5

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1952	97.1	97.8	95.1	90.4	87.9	87.6	73.3	86.1	81.7	90.7	90.5	85.3	88.6
1953	94.5	94.6	94.8‡	93.2‡	93.9‡								

COMPARATIVE YEARLY SUMMARIES

	1946	1947	1948	1949	1950	1951	1952	1953
Year to Date	100.4	105.5	99.9	88.1	95.6	101.8	94.0	94.2
Year Average	96.9	101.7	92.1	83.7	95.8	98.0	88.6	

‡ Preliminary.
r Revised.

PAPERBOARD OPERATING RATIOS †

	May 16	May 23	May 30	June 6	June 13
1953	96	96	97	87	98
	May 17	May 24	May 31	June 7	June 14
1952	83	83	79	75	86

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1952	81	86	85	82	82	82	71	89	88	96	96	85	85
1953	91	95	95	95	96								

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

Note: In the above tables *all* the ratios shown are on the basis of a normal 6 and 7 day capacity.

† Per cents of operation based on "Inch-Hours" reported on a 6-day basis to the National Paperboard Association.

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HELP WANTED

MEN WANTED—POSITIONS OPEN

We can place—Managers, supts. and asst. supts. for mills making board, asphalt roofing, rag and sulphite bond papers and bag mfg.; research and technical directors; industrial engineers, time study men; office mgr.

Chemists for mills, also for demonstrating and selling; salesmen and demonstrators; finishing foremen; Cylinder and Fourdrinier mach. foremen; machinery designers and draftsmen; power plant supervisors; master mechanics and plant engineers; beater engineers; color men and color matchers; machine tenders and back tenders.

LIST YOUR APPLICATION WITH US. IT WILL BE CONFIDENTIAL.

CHARLES P. RAYMOND SERVICE, Inc.
294 Washington St., Boston 8, Mass.
Phone: Liberty 2-6547 J-26

CHEMICAL ENGINEER

Pulp mill located in north Florida now expanding offers excellent opportunity for a recent graduate or experienced Ch.E. Salary commensurate with ability. Our engineers know of this ad. Write Box 53-253, care Paper Trade Journal. J-17

SALES REPRESENTATIVES WANTED

Immediate opening in our Sales Organization for a Sales Representative in New England states to sell our Chemical Specialties to the Pulp and Paper Mills and Paper Converting Plants. Excellent opportunity for a man who is willing to work and travel. Paper Mill and/or Chemical background desirable but not essential. Sales experience or Sales Inclination necessary. Salary, Commission and Traveling Expenses. Replies should state clearly age, training and all experience leading to the requirements indicated. All applications treated confidentially. Replies to Box 53-250 c/o Paper Trade Journal. J-3

Product Development Specialist For Consumer Paper Products

Leading paper mill producing advertised brands of towels, tissue, napkins, etc. is looking for an experienced man with imagination, a thorough understanding of modern paper converting, and a flair for product development. The right man can build this assignment into important executive responsibilities. Salary open. Our own people know about this advertisement. Write Box 53-252 care Paper Trade Journal. J-26

WANTED—Chemical Engineer or Chief Chemist for a national organization with a mill in the Midwest, producing .009 corrugating medium.

Experience in actual pulp and paper mill operation including quality control. Experience in stream pollution control desirable.

Reply in longhand and include photograph, personal data, educational history, industrial history, and starting salary expected. All replies will be held in strict confidence.

Write Box No. 53-228 care Paper Trade Journal. Jy-3

WANTED man with De-inking experience to make reasonable investment and head up pulp plant in Pennsylvania. Write fully regarding past experience. Address Box 53-240 care Paper Trade Journal. J-26

WANTED—Machine Tenders and Back Tender for one cylinder felt machine in Florida. Give past experience in first letter. Address Box 53-214 care Paper Trade Journal. J-26

HELP WANTED

WANTED

Beater man experienced in rag content grades. Write giving past experiences and references. Address Box 53-255 care Paper Trade Journal. J-26

SALARIED POSITIONS $3,500 to $35,000. We offer the original personal employment service (established 43 years). Procedure of highest ethical standards is individualized to your personal requirements. Identity covered; present position protected. Ask for particulars. R. W. BIXBY, INC. —117 Dun Bldg., Buffalo, 2, N. Y. J-26

WANTED
Paper Mill Manager

To assume full responsibility of operating a two machine mill, making rag content papers, located in East. College technical training necessary —age 30 - 45. Excellent opportunity for qualified man. Applicant should submit complete information in training, experience and salary expected. All replies will be held confidential. Address Box 53-246 care Paper Trade Journal. JY-3

Mechanical Engineer

Pulp mill located in north Florida now expanding offers excellent opportunity for an experienced M.E. Salary commensurate with ability. Our engineers know of this ad. Write Box 53-245 care Paper Trade Journal. J-10

MACHINIST who has had experience in bag machine adjusting, to work in experimental department. Good salary and steady work. Write, giving particulars and salary required. Address Box 53-219 care Paper Trade Journal. J-26

A #1 ADJUSTER wanted on Potdevin S.O.S. —sacks, flats and squares. Also Bag Machine Mechanic and Printers on aniline printing. Give references and salary. Address Box 53-211 care Paper Trade Journal. J-26

SITUATIONS WANTED

CHIEF ENGINEER with 20 years of experience in steam power plant operation and maintenance and a good technical background in engineering, wants a position as chief engineer in charge of steam operations. First class license. Good references. Address Box 53-241 care Paper Trade Journal. J-3

SUPERINTENDENT—With proven operating ability—sound practical and basic technical experience. Yankee or Fourdrinier type Machines manufacturing light and heavy specialized grades from chemical and mechanical pulps. Good knowledge of stock preparation. Middle age. Good health. References. Address Box 53-200 care Paper Trade Journal. Jy-17

MILL REP. OR SALESMANAGER—Thoroughly experienced selling Fine & Coarse Papers, specialties, Jobbers, Converters throughout East and Middle West. Seeks opportunity handle mill sales or branch office in the East. Wide Industry acquaintance. Can be available Sept. 1, possibly sooner. Address Box 53-212 care Paper Trade Journal. J-26

SITUATIONS WANTED

GRADUATE CHEMIST—Ten years pulp mill experience, able to fill all positions in control department. Presently employed. Desires change. Seeks position of control superintendent or his assistant. Address Box 53-239 care Paper Trade Journal. J-26

SUPERINTENDENT—Twenty six years of practical experience manufacturing high grade folding box board, frozen food cartons, other sanitary food packages from sulphite, sulphate, groundwood, old paper stock. Aggressive, capable man. Excellent references. Address Box 53-195 care Paper Trade Journal. J-17

FOR SALE

FOR SALE

Reels
190" Pusey & Jones Pope reel.
162" Pusey & Jones uniform speed reel.
96" Rice Barton two bowl.

Winders
186" Cameron No. 19.
152" Cameron No. 18.
82" Cameron 10-10.
72" Langston Style A.
42" Cameron Type 6.

Cutters (Duplex)
150" Hamblet.
124" Hamblet extra heavy with Cameron rotary board slitter.
100" Dillon.
90" Hamblet.

Cutters (Single)
108" Moore & White with layboy.
86" Dillon with Brannon folder.
80" Hamblet with Moore & White layboy and roll-stand.
72" Clark.

Jordans
2—Noble & Wood Mammoth.
2—Noble & Wood Bulldog.
1—No. 1 Jones.
1—Jones Imperial.

Refiners
2—36" Bauer, double disc.
1—32" Sutherland.
2—No. 1 Claflin.
2—Shartle No. 4.

Pumps (Vacuum)
2—Nash hytor No. 6.
1—Nash L-6, all bronze.
2—Nash hytor No. 3.
1—Nash hytor No. 2.

Dryers
40—48 x 160" Pusey & Jones.
9—48 x 108" Pusey & Jones.

FRANK H. DAVIS CO.
175 Richdale Ave., Cambridge, Mass.
TF

FOR SALE

1—87" Langston Slitter & Winder.

1—90" Johnstone Score Cut Slitter & Winder.

1—Cameron 65" Type 10-S, Serial #70758

1—210" Beloit Slitter & Winder

1—108" Pusey & Jones 2-drum Slitter and Winder.

1—124" Moore & White 4-drum Winder.

1—74" Moore & White 4-drum Winder.

1—86" Horne Duplex Sheeter with backstands and sheet counters.

1—105" Clark Aiken Sheeter.

1—126" Horne Duplex Sheeter.

1—74" Dayton Seybold Trimmer.

Pope Type Continuous Reels and backstands built to order.

OSBORNE PAPER MILL EQUIPMENT CORP.
FULTON, N. Y. Tel. 2-4254
J-26

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WOULD YOU CONSIDER

a going concern producing board at the rate of 160 tons per 24 hours with a year to a year and a half of its production sold in advance? Mill in good condition and has good personnel relations."

BLACK-CLAWSON COMPANY

Shartle Brothers Machine Division

Used Equipment Dept.

Middletown, Ohio

J-26

FOR SALE

FOR SALE

40" Clark & 42" Finley Sheeters.
28" Hobbs Shear Cut Slitter.
48" Kidder model CH Slitter.
75" Moore & White 2-drum Rewinder.
100" Dillon Sheeter.
Back-Stands, any size, made to Order.

THOMAS W. HALL COMPANY, Inc.
120 West 42nd St., New York 36
(Plant at Stamford, Conn.) TF

PAPER COATING MACHINERY MANUFACTURERS — Waxing, Oiling, Carbon Laboratory Coating and Treating and Flat Ream Measuring and Converting Machines. New improvement. THE MAYER MACHINE COMPANY, INC., 1313 Buffalo Road, Rochester, 11, N. Y. TF

FOR SALE—42" Camachine No. 6. For further details write Box 53-249 care Paper Trade Journal. J-26

FOR SALE

FOR SALE
SULPHITE SCREENINGS
2000 tons immediately available in lay form. Sample submitted or inspection invited.
JOSEPH CHESTNER and SON
859 E. 10th St. Erie, Pa. J-17

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1—Sandusky Suction Press Roll—162" drilled face x 22" diameter with roller bearings.

FOR SALE

BARKING DRUM
1—10' x 30'.

BEATERS
Write us regarding your requirements.

CALENDER STACKS
1—9 roll 68" Calender Stack.
1—4 roll 72" Calender Stack. (Extra heavy duty).
1—3 roll 60" Friction Calender Stack. Two iron rolls and 1 Paper or Cotton Roll.
1—12 roll 116" Calender Stack.
1—9 roll 84" Supercalender Stack.
1—110" face 2 roll breaker stack, with frames.

CHIPPERS
96" Murray 4 knife Chipper—anti-friction bearings.
1—84" Carthage 4 knife Chipper.
1—88" Carthage 4 Knife Chipper.

CLASSIFINER
1—Dilts Classifiner, practically new, with motor.

CORE MACHINE
1—Dietz Core Machine (tube winder).

CRUSHER & HAMMERMILL
1—Murray Chip Crusher.
4—Jeffrey Hammermill.

CYLINDER MOLDS
2—30" diameter x 72" face.
2—36" diameter x 54" face.
4—36" diameter x 84" face.
1—30" diameter x 92" face.
1—48" diameter x 117" face.

DIGESTERS
2—14' Globe Rotary Digesters.

DRIVES
1—Jones Reducer 75 h.p.—30.8 to 1.
1—#6½ Reeves Drive.
1—#4 Reeves Drive
1—Vaughn 100 h.p. enclosed drive—ratio 7 to 1.
2—Rice Barton Machine Drives, with clutches, ratio 4:1.
2—Cleveland Agitator Drives for chests.

DRYERS
1—Complete unit, consisting of 6 dryers, 30" diameter x 38" face, including frames, gears, anti-friction bearings.
1—36" diameter x 143" face.
1—48" diameter x 70" face.
2—Dryers 48" diameter x 134" face.
1—24" diameter x 92½" face.
1—28" diameter x 48" face.
1—36" diameter x 67" face.
2—36" diameter x 120" face.
1—48" diameter x 144" face.
5—28" diameter x 68" face.
5—28" diameter x 80" face, with anti friction bearings.
20—48" diameter x 46" face.
20—36" diameter x 72" face.
3—60" diameter x 86" face.
1—48" diameter x 100" face.
1—48" diameter x 106" face.
1—36" diameter x 90" face.
14—36" diameter x 115" face.
8—24" diameter x 60" face, with frames, gears and bearings.

EMBOSSING CALENDERS
2—15" 2 roll Embossers.
1—30" Fuchs & Lang 2 roll embosser.

FELT CONDITIONER
1—100" Vickery Felt Conditioner.

FLAT SCREENS
2—12 plate Flat Screens.

GEARS
30 gears, for 36" diameter Dryers, 108 teeth 3¼" face.

GRINDERS
2—4 pocket Grinders.
2—3 pocket Grinders.

JORDANS
2—Noble & Wood Mammoth.
1—#2 Emerson anti friction bearing.

LABORATORY EQUIPMENT
1—Mullen Tester, with motor.

LAMINATING MACHINE
1—72" Hudson Sharp Laminating Machine.

MOTORS
1—150 h.p. Westinghouse 495 r.p.m. 3/60/440, with starter.
Write us regarding your requirements.

PRESSES
3—Sets Primary Presses, complete, 145" face. Anti-friction bearings. Also all types of rolls for 145" wet end.

PULLEYS
Various cone and assorted pulleys

PULPERS
1—Jones Pulper.
1—Lannoye Pulper.

PUMPS
Various sizes of Centrifugal and Plunger Pumps. Write us regarding your particular requirements.

RAG CUTTERS
2—#2 Daniels Rag Cutters.
2—#20 Taylor Stiles.

REELS
1—123"—3 bowl Revolving Reel.
1—134"—2 drum.
1—72" Dowingtown Reel, 2 bowl

REFINERS
2—#1 Claflin Refiners.

ROLL HEADING MACHINE
1—Montague Header, with Air Cylinders, Heating Element, etc., for up to 36" Dia. x 82" Long Rolls.

ROLLS
1—Rubber Couch Roll—20" diameter x 108" face.
Felt, Table, Press, Breast, Couch, etc Various sizes and types. (Bronze, Rubber Iron, etc.)

ROTARY SCREENS
Write us regarding your requirements.

SAVEALLS
2—Savealls, 36" diameter x 136" face cylinder molds, iron end vats
1—Pusey & Jones 42" x 146" Saveall.

SHAKER ROLLS
1—134" face x 14" diameter with Messenger bearings.
1—104" face x 14" diameter with Messenger bearings.

SHEETERS
1—122" Horne Sheeter.
1— 82" Hamblet.
1—124" Hamblet.
1—100" Moore & White Simplex Sheeter with layboy.
1—72" Hamblet Sheeter.
1—140" Hamblet (Simplex) Sheeter.
1—140" Hamblet (Duplex) Sheeter.

SHOWERS
5—Bird Showers 96" face.

SLITTERS & WINDERS
1— 42" Cameron—Type 24-2-A.
1— 42" Cameron—Type 6.
1— 62" Cameron—Type 6.
1— 62" Cameron—Type 40-1-AF.
2— 72" Cameron—Type 10.
2— 84" 4 drum Moore & White.
1—104" Beloit two drum winder.
1—102" Moore & White 4 drum winder.
1—120" Moore & White 4 drum winder.
1—108" Sandy Hill Winder.
1—160" Black-Clawson—2 drums.
1— 52" Cameron—Type 10, with variable speed motor.

STOCK PUMPS
2—10 x 10 Beloit Duplex, low type.
1—8 x 18 Shartle Triplex.
1—8 x 18 Shartle Duplex.
2—10 x 20 Shartle Triplex.
Advise us to your requirements.

SUCTION BOX CONDITIONER
12" capacity, with 5 h.p. motor.

SUCTION BOXES
Write us regarding your requirements.

SUCTION COUCH ROLL
1—Sandusky Couch Roll 86" drilled face x 14⅝" diameter.

SUCTION PRESS ROLLS
1—Sandusky Suction Press Roll 130" drilled face x 14⅝" diameter.

TABLE ROLLS
30—90" face x 3" diameter.
Write us regarding your requirements.

THICKENERS
1—Pulp Thickener, cylinder mold 48" x 117", with spare cylinder mold.
2—Cheney Bigelow 36" diameter x 110" face mold.

TOILET WINDERS
2—72" Hudson-Sharp (Surface type winder)
2—81" Deitz.

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1—44" Seybold.
1—60" Guillotine Cutter.

TURBINE
1—General Electric 110 h.p. Turbine.

VACUUM PUMPS
1—N-82 Nash, for Fulton-Midwest System.
1—#8 Nash Hytor.
1—#9 Nash Hytor.
1—#6 Nash Hytor (Bronze).
1—L-5 Nash Vacuum Pump (Bronze).
1—L-6 Nash Vacuum Pump.
1—#3 Nash Hytor.

WET MACHINE
1—72" Wet Machine.

YANKEE DRYERS
1—106" face x 72" diameter.

Paddy Ross, Pres. **J. J. ROSS COMPANY** Ben Kurs, Treas.

250 Frelinghuysen Ave. Tel.—Bigelow 3-3720 Newark 5, N. J.

FOR SALE

Hardwood pulp mill including 72" trim pulp machine consisting of two cylindermoulds and couch rolls, suction couch roll, first press with 24" dia. rolls, second press with 18" rolls, eighteen dryers 28" dia. and twenty one dryers 36" dia. Also two bowl reel, Moore & White four drum winder. Foundation plate (63 ft.). Also drive, lineshaft and pulleys.

Also included are three rotary digesters with reducers and drives, Green Bay Saveall, Shartle refiner with motor, coupling and base, Dilts beater 56x48" with cast iron tub and drive, Impco re-pulper, Wallace Tiernan chlorinator, two 8 x 6 Oliver filters, two 8 x 4 Oliver filters, stainless steel heads, three 5 HP Reeves motor drives, four Bird consistency regulators (new), Buffalo limit load exhauster size six, class 1 with motor and drive, Koregl slitter grinder, glass lined tanks 6' x 6', three heat exchangers, 14" O.D. x 20 ft. Impco chemical mixer, two ft. agitator drives 6 - 90 - 150, 15 HP, 220-440 volt motors, two ft. agitators 10 H.G.V. with 15 HP 220-440 volt motors, Sturtevant blower number 281181 with motor, two Frederick pumps 200 GPM, one 100 ft. head, with motors, one Frederick pump 150 GPM, 25 ft. head with motor, one size 2½ Gardner Denver pump, one Suderbuilt vacuum pump with motor, two vacuum receivers.

All the above equipment is still set up in its original location. Equipment was used for about six months.

Items to be sold separately or as a unit.

Frank H. Davis Co., 175 Richdale Ave., Cambridge, Mass.

J-3

FOR SALE

172" trim left hand Pusey & Jones Fourdrinier paper machine. Machine originally installed 1928. Fourdrinier rebuilt by Pusey & Jones in 1950. Wire 190" x 70 feet. 30" suction couch. Two presses, with new 34" Downingtown suction roll-on first press. Smoothing press. Twenty dryers 60" x 188". 7 roll calender. Pope reel. No. 19 Cameron. All electric drive. Machine now in operation approximately 1000 FPM, producing 63 tons 27 pound Bond. Machine can be inspected while in operation.

Frank H. Davis Company, 175 Richdale Avenue, Cambridge, Mass.

TF

AUCTION

Pursuant to an order by the Bankruptcy Court
In the Matter
of
BERWIN PAPER MANUFACTURING CORP. Bankrupt.
Paper manufacturing business
will be offered for sale at

PUBLIC AUCTION

on
THURSDAY, JULY 16th, 1953, 10:30 A.M. E.D.S.D.T.
on the premises of the bankrupt
at
KNOX STREET DANSVILLE, N. Y.

REAL ESTATE, MACHINERY, EQUIPMENT, SMALL TOOLS, RAW MATERIAL, OFFICE EQUIPMENT, etc., WILL BE OFFERED FIRST IN BULK, then UNITS, and PARCELS or LOTS

Complete plant for paper manufacturing equipped with four beaters, one 2400 lb; one 1800 lb; two 1400 lb; two Jordans, two screens; two bleachers; five filters; 1 pulper; 1 refiner, two cylinder paper machines, widest trimmed sheets 65½ and 74 inches, eight dryers for each machine, 75-85 inches diam. Purchased electricity, 60 cycle, 3 phase, 800 HP. Installed electricity, motors of 440 V. Fuel Coal; 160 lb. steam pressure, water treatment and effluent treatment plants. Candy twisting and waxing tissue; High grade wrapping tissue and newsprint; 24,000 lbs. 24 hours.

30 Motors, 3 to 100 HP. Paper Testing and Weighing Equipment.
30 Pumps. 2 Erie Ball Bearing Steam Engines.
Machine Shop. Bulkley-Dunton Colloidal Save-All
Small Tools. Transformers, Generators, Air Compressors.
Wm. Bros. 300 HP, 25,000 lb. per hour, Water, Tube Boiler, built in 1947.

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$70,000.00 Raw Materials, at cost.
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Terms of Sale: Certified check or cash—25% deposit required.

E. Charles Larry, Trustee
39 Exchange St.
Rochester, New York.

Burns & Suter
Relin & Relin, Attorneys for Trustee
Rochester, New York.

INSPECTION: WEDNESDAY, JULY 16th, 1953, 10:00 A.M. to 5:00 P.M. or by APPOINTMENT PREVIOUS TO AUCTION DATE BY CALLING THE AUCTIONEERS.
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J-3

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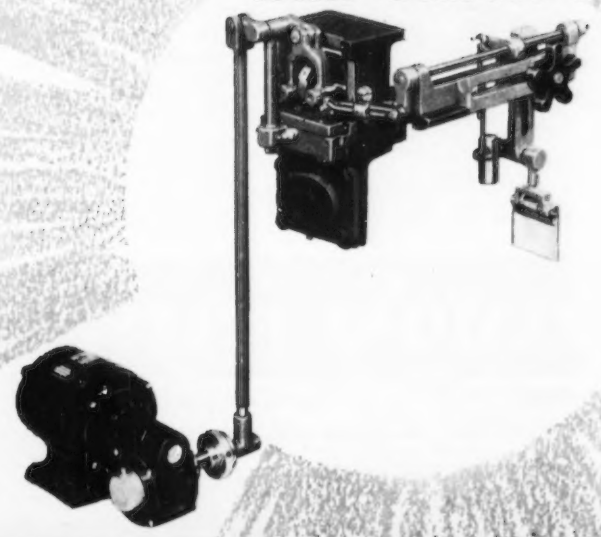

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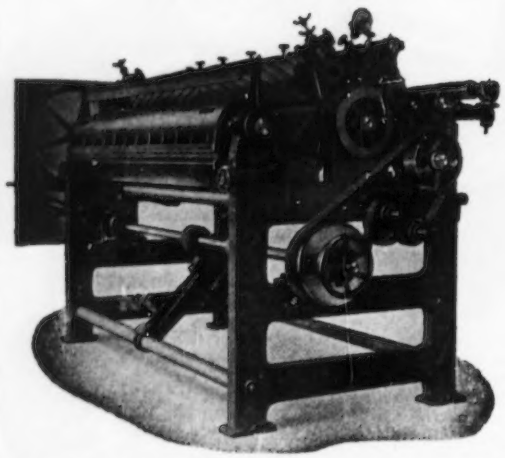

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Westinghouse Electric Corp.

EXPANDERS
Mount Hope Machinery Co.

EXTRACTOR PLATES
Mundt, Chas., & Sons

FANS
Buffalo Pumps, Inc.,
General Electric Co.
B. F. Perkins & Son, Inc. Roots-Connersville Div.
Ross Engineering Co., J. O.
Westinghouse Electric Corp.

FEEDERS
Jeffrey Mfg. Co.
Merrick Scale Mfg. Co.

FELTS
Appleton Woolen Mills
Asten-Hill Mfg. Co.
Draper Bros. Corp.
Huyck & Son, F. C.
Knox Woolen Company
Lockport Felt Co.
Morey Paper Mill Supply Co.
Shuler & Benninghofen
Waterbury Felt Co.
Williams-Gray Co.

FELT CLEANERS
Calgon, Inc.
General Dyestuff Corp.
Nopco Chemical Co.

FELT CONDITIONERS
Bird Machine Co.
Downingtown Mfg. Co.
Mount Hope Machinery Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works

FELT EXPANDERS
Mount Hope Machinery Co.

FELT GUIDES
Black Clawson Company
Downingtown Mfg. Co.
Frank W. Egan & Co.
Gilbert & Nash Co.
Moore & White Co.
The Noble & Wood Machine Co.
Mount Hope Machinery Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John

FELT PRESERVERS
Mount Hope Machinery Co.

FIBRE BOARD MACHINES
Sandy Hill Iron & Brass Works

FILLERS
American Cyanamid Company, Industrial Chemicals Division
J. M. Huber Corp.
A. M. Meincke & Son, Inc.
Vanderbilt Co., R. T.
Wyandotte Chemicals Corp., Michigan Alkali Div.

FILLINGS
John W. Bolton & Sons, Inc.

FILTER MEDIA
Anthracite Equipt. Corp.
Palmer Filter Equipt. Co.

FILTERS
Bird Machine Company
Bulkley, Dunton Processes, Inc.
Holyoke Machine Co.
Hungerford & Terry, Inc.
Improved Machinery Inc.
Johnson Corp.
Moore & White Co.
J. O. Ross Engrg. Corp.
The Sandy Hill Iron & Brass Works
Walworth Company

FILTERS, LIME MUD
Bird Machine Company

FILTER SCREENS
Mundt, Chas. & Sons

FINE SCREENS
Bird Machine Company
Mundt, Chas. & Sons
Sandy Hill Iron & Brass Works

FITTINGS
The Bagley & Sewall Company
Crane Company
Grinnell Company
Pittsburgh Piping & Equipt. Co.
Shartle Bros. Mch. Co.
Walworth Company

FLEXIBLE COUPLINGS
Dodge Manufacturing Corp.
Egan, Frank W., & Co.
Elliott Company, Inc.
Jeffrey Mfg. Co.
John Waldron Corp.
Westinghouse Electric Corp.

FLOORING, GRATING AND TREADS
The Goodyear Tire & Rubber Company
Norton Co.

FLOTATION EQUIPMENT
Denver Equipment Co.

FLOW BOXES
Biggs Boiler Works Co.
Lukens Steel Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works

FOLDERS
Emerson Mfg. Co.

FORK LIFT TRUCKS
Elwell Parker Elec. Co.

FORMATION TESTERS
Testing Machines, Inc.
Thwing-Albert Instrument Co.
Williams Apparatus Co., Inc.

FOURDRINIERS
Beloit Iron Works
Black Clawson Company
Downingtown Mfg. Co.
Manchester Machine Co.
The Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

FREENESS TESTERS
Testing Machines, Inc.
Williams Aparatus Co.

GASKETS
B. F. Goodrich Co.
The Goodyear Tire & Rubber Company

GEAR MOTORS
Elliott Company, Inc.
Westinghouse Elec. Corp.

GEAR REDUCERS
Dodge Mfg. Corp.
Downingtown Mfg. Co.

GEAR REDUCER DRIVES
Link Belt Co.

GEARS
The Bagley & Sewall Company
Black Clawson Company
De Laval Steam Turbine Co.
Downingtown Mfg. Co.
Frank W. Egan & Co.
Farrel-Birmingham Co.
E. D. Jones & Sons Co.
Moore & White Co.
D. J. Murray Mfg. Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Westinghouse Electric Corp.

GRAPPLES
Blaw-Knox Company
Owen Bucket Co.
Wellman Engrg. Co.

GRINDERS
Carthage Machine Co.
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Hanchett Mfg. Co.
Lobdell United Co.
Norton Company
Samuel C. Rogers and Company
The Sandy Hill Iron & Brass Works

GRINDING WHEELS
Norton Company
Simonds Abrasive Co.

GUIDES
The Bagley & Sewall Company
Beloit Iron Works
Black-Clawson Co.
Downingtown Mfg. Co.
Egan, Frank W., & Co.
Gilbert & Nash Co.
The Moore & White Co.
Mount Hope Machinery Co.
Rice Barton Corporation
Sandy Hill Iron & Brass Works
Waldron, John, Corp.

GUMMING MACHINES
Dilts Machine Works
Egan, Frank W., & Co.
Paper Converting Machine Co.
The Sandy Hill Iron & Brass Works
Waldron, John, Corp.

GUMS
Hercules Powder Co., Inc.
National Starch Products, Inc.

HEAT EXCHANGERS AND RECOVERY SYSTEMS
Westinghouse Electric Corp.

HEATING, VENTILATING & AIR CONDITIONING
The Appleton Machine Co.
E. D. Jones & Sons Co.
General Electric Co.
Jackson & Church Co.
Jamar Olmen Co.
D. J. Murray Mfg. Co.
Red-Ray Mfg. Co., Inc.
Ross Engineering Corp., J. O.
Valley Iron Works Co.
Westinghouse Electric Corp.

HONING KIT
John W. Bolton & Sons, Inc.

HOSE (Air, Water, Suction, etc.)
B. F. Goodrich Co.
The Goodyear Tire & Rubber Company

HUMECTANTS
Aktivin Division, Heyden Chemical Corp.
Nopco Chemical Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

HYDRAULIC TURBINES & ACCESSORIES
James Leffel Co.

IMPREGNANTS
American Cyanamid Company, Industrial Chemicals Division
Sun Oil Company
B. F. Goodrich Chemical Co.

INDENTING MACHINES
Dilts Machine Works

INDUSTRIAL CONTROL
Westinghouse Elec. Corp.

INDUSTRIAL TIRES
B. F. Goodrich Co.

INDUSTRIAL TRACTORS
Towmotor Corp.

INKOMETER
Thwing-Albert Instrument Co.

INSTRUMENTS, TESTING AND MEASURING
Black-Clawson Co.
General Electric Co.
W. & L. E. Gurley
B. F. Perkins & Son
Taylor Instrument Cos.
Testing Machines, Inc.
Testworth Laboratories
Thwing-Albert Instrument Co.
Tracerlab, Inc.
A. van der Korput
Williams Apparatus Co.
Westinghouse Electric Corp.

INSULATION
Insul-Mastic Corp. of America

JACKETS
Emerson Mfg. Co.

JOINTS
The Bagley & Sewall Company
Beloit Iron Works
Cram Associates
Downingtown Mfg. Co.
Johnson Corp.
Rice Barton Corporation
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

JORDANS
Emerson Mfg. Co.

JORDAN FILLINGS
Appleton Machine Co.
Bahr Bros. Manufacturing Co.
John W. Bolton & Sons, Inc.
E. D. Jones & Sons Co.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

KILNS
Jackson & Church Co.
F. L. Smidth & Co.

KNIVES
Black Clawson Company
John W. Bolton & Sons, Inc.
Dilts Machine Works, Inc.
Hamblet Machine Co.
E. D. Jones & Sons Co.
The Moore & White Co.
Simonds Saw & Steel Co.
Taylor Stiles & Co.
Valley Iron Works Co.

KNOTTERS
Black-Clawson Co.
Improved Machinery, Inc.
Sandy Hill Iron & Brass Works

LABORATORY CORRUGATOR
Testing Machines, Inc.
Thwing-Albert Instrument Co.

LABORATORY EQUIPMENT
Appleton Machine Co.
Bauer Brothers Co.
Biggs Boiler Works Co.
Bird Machine Company
Dilts Machine Works
Downingtown Mfg. Co.
W. & L. E. Gurley
Egan, Frank W., & Co.
Hermann Mfg. Co.
Jackson & Church Co.
E. D. Jones & Sons Co.
Taylor Instrument Companies
Testing Machines, Inc.
Testworth Laboratories
Thwing-Albert Instrument Co.
Valley Iron Works Co.
Waldron, John, Corp.
Williams Apparatus Co., Inc.

LAMINATING MACHINES
The Bagley & Sewall Company
Dilts Machine Works
Egan, Frank W., & Co.
Paper Converting Machine Co.
Rice Barton Corporation
Waldron, John, Corp.

LAY BOYS
Dilts Machine Works
Gibbs-Brower Company, Inc.
Hamblet Machine Co.
Moore & White Co.

LINTER PULP
Hercules Powder Co., Inc.

LUBRICANTS
Cities Service Oil Co.
Gulf Oil Corp.
Sinclair Refining Co.
Socony-Vacuum Oil Co.
The Texas Company

MAGAZINE REELS
Dilts Machine Works

MAGNETIC SEPARATORS
Bauer Bros. Co.
Eriez Manufacturing Co.

MATERIALS HANDLING
Dilts Machine Works
Downingtown Mfg. Co.
Ederer Engrg. Co.
Jeffrey Mfg. Co.
Link Belt Co.
Shartle Bros. Mch. Co.
Towmotor Corp.
The Wellman Engrg. Co.

MICROMETERS & CALIPERS
Farrel-Birmingham Co.
Lobdell Co.
Testing Machines, Inc.

MIXERS
Jackson & Church Co.
Mixing Equipment Co.

MICRO-CRYSTALLINE WAXES
Sun Oil Company

MOISTURE CONTENT CONTROL
Testing Machines, Inc.
Williams Apparatus Co., Inc.

MOISTURE METERS
Testing Machines, Inc

MOTORS
Elliott Company

MOTORS AND GENERATORS
Elliott Company, Inc.
General Electric Company
Reliance Electric & Engrg. Co
Westinghouse Electric Corp.

NICKEL AND NICKEL ALLOYS
The International Nickel Co

NOZZLES
Spray Engrg. Co.

PACKING BOXES
Johnson Corporation
The Moore & White Co.
Shartle Brothers Machine Co

PADDLE SCREENS
Mundt, Chas., & Sons

PAPER MACHINE DRIVES
The Bagley & Sewall Company
Beloit Iron Works
Black-Clawson Co.
Downingtown Mfg. Co.
Manchester Machine Co.
Rice Barton Corporation
Sandy Hill Iron & Brass Works
Westinghouse Electric Corp.

PAPER MACHINES
The Bagley & Sewall Company
Beloit Iron Works
Black-Clawson Company
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Lukenweld
Manchester Machine Co.
Moore & White Co.
Pusey & Jones Corp.
Rice Barton Corporation
J. J. Ross Company
Ross Paper Machinery Corp
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.

PAPER MACHINE SLICES
Black-Clawson Company
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
The Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Valley Iron Works Co.

PAPER TUBE MACHINERY
Dietz Machine Works
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hudson Sharp Machine Co.
Langston Co., Samuel M.
Paper Converting Machine Co.

PARAFFINE WAXES
Sun Oil Company

PARAFFIN WAX EMULSIONS
American Cyanamid Co., Ind. Chem. Div.
Hercules Powder Co., Inc.
Nopco Chemical Co.

PASTING MACHINES
Beloit Iron Works
Black-Clawson Company
Dilts Machine Works
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Murray, D. J., Mfg. Co.
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John

PERFORATED SCREENS
Chas. Mundt & Sons

PEBBLE MILLS
F. L. Smidth & Co.

pH METERS
Testing Machines, Inc.
Thwing-Albert Instrument Co.

PIPE
Armco Drainage & Metal Products, Inc.
Babcock & Wilcox Co.
Crane Company
Grinnell Company
National Tube Co.
Naylor Pipe Co.
Walworth Company

PIPE FABRICATORS
Pittsburgh Piping & Equipt. Co.

PIPE FITTINGS
Armco Drainage & Metal Products, Inc.
Crane Company
Grinnell Company
Pittsburgh Piping & Equipt. Co.
Walworth Co.

PIPING, HIGH PRESSURE
Pittsburgh Piping & Equipt. Co.

PITCH CONTROL
American Cyanamid Company, Industrial Chemicals Division
General Dyestuff Corp.
Monsanto Chemical Company
National Aluminate Corp.
Nopco Chemical Co.

PLASTICIZERS
American Cyanamid Company, Industrial Chemicals Company
Aktivin Division, Heyden Chemical Corp.
B. F. Goodrich Chemical Co.
Jackson & Church Co.
Naugatuck Chemical Division of U. S. Rubber Co.
Nopco Chemical Co.

PLATERS
Gibbs-Brower Company, Inc.
Perkins & Son, Inc., B. F.

PLATES
Armco Steel Corp.
Babcock & Wilcox Co.
Lukenweld Division
Lukens Steel Company
J. O. Ross Engrg. Corp.
Timken Roller Bearing Co.

PLUGS
The Appleton Machine Co.
Black-Clawson Company
Emerson Mfg. Co.
E. D. Jones & Sons Co.
Shartle Brothers Machine Co.

POPE TYPE REELS
Black-Clawson Company
Downingtown Mfg. Co.
Egan, Frank W., & Co.
Manchester Machine Co.
Rice Barton Corporation
Sandy Hill Iron & Brass Works

PRESERVATIVES
Buckman Laboratories, Inc.
E. I. du Pont de Nemours & Co
General Dyestuff Corp.

PRESS ROLLS
Beloit Iron Works
Black-Clawson Co.
Downingtown Mfg. Co.
Goodrich, B. F., Company, Inc
Manchester Machine Co.
Rice Barton Corporation
Sandy Hill Iron & Brass Works

PRESSURE FILTERS
Holyoke Machine Co.
Jackson & Church Co.
Sandy Hill Iron & Brass Works

PRESSURE VESSELS
Chicago Bridge & Iron Co.
A. O. Smith Corp.

PRESSES
Beloit Iron Works
Black-Clawson Company
Downingtown Mfg. Co.
Dietz Machine Works
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Hudson-Sharp Machine Co.

Jackson & Church Co.
Manchester Machine Co.
The Moore & White Co.
Paper Converting Machine Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Testing Machines, Inc.
Valley Iron Works Co.
Waldron Corp., John
H. G. Weber & Co., Inc.
Williams Apparatus Co.

PROTECTIVE COATINGS
Insul-Mastic Corp. of America

PULLEYS
Bird Machine Company
Black-Clawson Co
Dodge Mfg. Corp.
Rice Barton Corporation
Sandy Hill Iron & Brass Works

PULP CLASSIFIER
The Bauer Bros. Co.
Testing Machines, Inc.
Thwing-Albert Instrument Co.

PULP CLEANERS
Bauer Bros. Co.
Bird Machine Co.
Nichols Engrg. & Research Corp.
Sandy Hill Iron & Brass Works

PULP REFINERS
Emerson Mfg. Co.

PULP SCREENS
Bird Machine Co.
Mundt, Chas. & Sons
Sandy Hill Iron & Brass Works

PULP STOCK VALVES
Crane Company
Grinnell Company
Record Fdy. & Mach. Co.
Rice Barton Research Corp
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

PULP WASHERS
Mundt, Chas., & Sons
Sandy Hill Iron & Brass Works

PULPERS
Apmew, Inc.
Bauer Brothers Co.
Cowles Company
Curlator Corp.
Dilts Machine Works
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Midwest Fulton Mch. Co.
Morden Machines Co.
Rice Barton Research Corp.
Shartle Brothers Machine Co.

PULPS
Brown Company
Gottesman & Co., Inc.
Lyddon & Co. (America), Inc.
Parsons & Whittemore, Inc.
Perkins-Goodwin Co.
Price & Pierce, Ltd.
Pulp and Paper Trading Co.
Pulp Sales Corp.
Restigouche Co., Ltd.

PULPSTONES
Norton Company

PULP TESTERS
Testing Machines, Inc.
Williams Apparatus Co., Inc.

PULP TREATING
Curlator Corp.

PULVERIZING MILLS
Jeffrey Mfg. Co.
F. L. Smidth & Co.

PUMPS
Apmew, Inc.
The Bagley & Sewall Company
Beloit Iron Works
Black Clawson Company
Buffalo Pumps, Inc.
Byron Jackson Co.
DeLaval Steam Turbine Co.
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Johnson Corp.
Moore & White Co.
Nash Engineering Co.
Roots Connersville Blower Corp.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.

RADIAL SCREENS
Chas. Mundt & Sons

RADIANT BURNERS
Red-Ray Mfg. Co., Inc.

RAG COOKING PROCESSES
General Dyestuff Corp.

RAG CUTTERS
Gibbs-Brower Company, Inc.
B. F. Perkins & Son, Inc.
Taylor-Stiles & Co.

RECOVERY SYSTEMS
Babcock & Wilcox Co.
Chicago Bridge & Iron Co.
Moore & White Co.
D. J. Murray Mfg. Co.
Peabody Engrg. Corp.
Pusey & Jones Corp.
Ross Engineering Corp., J. O.
Valley Iron Works Co.
Vulcan Copper & Supply Co.

REELS
The Appleton Machine Co.
The Bagley & Sewall Company
Beloit Iron Works
Black Clawson Company
Dilts Machine Works (Kohler Systems)
Egan, Frank W., & Co.
Downingtown Mfg. Co.
Hudson-Sharp Mch. Co.
Manchester Machine Co.
Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
The Smith & Winchester Mfg. Co.
Waldron, John, Corp.

REFINERS
Appleton Machine Co.
Bahr Brothers Mfg. Co.
Bauer Brothers Co.
Curlator Corp.
Dilts Machine Works
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Hermann Mfg. Co.
Jackson & Church Co.
E. D. Jones & Sons Co.
Morden Machines Co.
Murray, D. J., Mfg. Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Sutherland Refiner Corp.
Valley Iron Works

REGULATORS
Apmew, Inc.
Bird Machine Company
General Electric Co.
Improved Machinery Inc.
Johnson Corp.
Poirier Control Company
Shartle Brothers Machine Co.
Taylor Instrument Companies
Westinghouse Electric Corp.

RESINS
American Cyanamid Company, Plastics & Resins Division
Borden Company
The Dow Chemical Company
B. F. Goodrich Chemical Co.
The Goodyear Tire & Rubber Company
Hercules Powder Co.
Monsanto Chemical Company
Naugatuck Chemical Division of U. S. Rubber Co.
Nopco Chemical Co.
Reichhold Chemicals, Inc.

ROLLS
Appleton Machine Co.
The Bagley & Sewall Company
Beloit Iron Works
Black Clawson Company
Dilts Machine Works
Downingtown Mfg. Co.
Frank W. Egan & Co.
Emerson Mfg. Co.
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
B. F. Goodrich Co.
Holyoke Machine Co.
Lindsay Wire Weaving Co.
Lobdell United Co.
Manchester Machine Co.
The Moore & White Co.
D. J. Murray Mfg. Co.
Perkins, B. F., & Sons Co.
Pusey & Jones Corp.
J. J. Ross Company
Rice Barton Corporation
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
U. S. Rubber Co.
Valley Iron Works Co.
Waldron Corp., John
Wheeler Roll Co.

ROLL COVERS
The Goodyear Tire & Rubber Company

ROLL HANDLING EQUIPMENT
Dilts Machine Works

ROLL STANDS
Cameron Machine Co.
Dilts Machine Works
Frank W. Egan & Co.
Moore & White Co.
The Sandy Hill Iron & Brass Works
John Waldron Corp.
H. G. Weber & Co., Inc.

ROPE CARRIERS
Black Clawson Co.
Downingtown Mfg. Co.
The Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works

ROTARY KILNS
F. L. Smidth & Co.

ROTARY SCREENS
Bird Machine Company
Chas. Mundt & Sons

ROTARY STEAM JOINTS
Johnson Corp.
The Moore & White Co.
Rice Barton Corporation
Sandy Hill Iron & Brass Works
Shartle Bros. Mch. Co.

RUBBER PRODUCTS
B. F. Goodrich Co.
The Goodyear Tire & Rubber Company

SAMPLE CUTTER
Testing Machines, Inc.
Thwing-Albert Instrument Co.

SATURANTS
B. F. Goodrich Chemical Co.

SATURATING MACHINES
Dilts Machine Works
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman G.

SAVEALLS
Bird Machine Company
Bulkley, Dunton Processes, Inc.
Chicago Bridge & Iron Co.
Improved Paper Machinery Corp.

SAWS
Simonds Saw & Steel Co.

SCALES
Merrick Scale Mfg. Co.
Testing Machines, Inc.

SCREEN PLATES
Bird Machine Company
Fitchburg Screen Plate Co.
Magnus Metal Corp.
Morey Paper Mill Supply Co.
Mundt, Chas. & Sons
Testing Machines, Inc.

SCREENS
Appleton Wire Works
Appleton Machine Company
The Bagley & Sewall Company
Bird Machine Company
Carthage Machine Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
E. D. Jones & Sons Co.
Moore & White Co.
Mundt, Chas. & Sons
D. J. Murray Mfg. Co.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

SCREENS, CHIP (Vibrating)
Link Belt Co.

SCREENS (Perforated)
Mundt, Chas., & Sons

SCREENS (Rotary)
Bird Machine Company
Mundt Chas., & Sons

SHAKES
Downingtown Mfg. Co.

SHAKE STICKS
Westinghouse Electric Corp.

SHEET MACHINES
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hermann Mfg. Co.
Testing Machines, Inc.
Valley Iron Works Co.
Williams Apparatus Co., Inc.

SHOWER PIPES
Bird Machine Company
Black-Clawson Company
Downingtown Mfg. Co.
Emerson Mfg. Co.
Moore & White Co.
Sandy Hill Iron & Brass Works
Sandusky Fdy. & Mch. Co.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.

SHREDDERS
Bauer Brothers Co.
Carthage Machine Co.
Gibbs-Brower Company, Inc.
Jackson & Church Co.
Jeffrey Mfg. Co.

SIZE PRESSES
Black-Clawson Co.
Downingtown Mfg. Co.
Manchester Machine Co.
Rice Barton Corporation
Sandy Hill Iron & Brass Works

SIZING
American Bitumuls & Asphalt Co.
American Cyanamid Company, Industrial Chemicals Division
The Dow Chemical Company
du Pont, E. I., de Nemours & Co.
Flintkote Company
Glidden Company
Hercules Powder Co.
The Hubinger Co.
Monsanto Chemical Company
National Aluminate Corp.
Nopco Chemical Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

SIZING TESTER
W. & L. E. Gurley
Testing Machines, Inc.
Thwing-Albert Instrument Co.
Williams Apparatus Co., Inc.

SLIME CONTROL
Buckman Laboratories, Inc.
The Dow Chemical Company
E. I. du Pont de Nemours & Co.
General Dyestuff Corp.
Magnuson Products Corp.
Monsanto Chemical Co.
National Aluminate Corp.
Vanderbilt Co., R. T.
Wyandotte Chemicals Corp., Michigan Alakli Div.

SLITTERS
The Bagley & Sewall Company
Black-Clawson Company
Cameron Machine Co.
Carthage Machine Co.
Dietz Machine Works
Dilts Machine Works
Downingtown Mfg. Co.
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co., Inc.
Hamblet Machine Co.
Hudson-Sharp Mch. Co.
Improved Machinery Inc.
Langston Co., Samuel M.
Moore & White Co.
D. J. Murray Mfg. Co.
Paper Converting Machine Co.
Rice Barton Corporation
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

SMOKE STACKS
Chicago Bridge & Iron Co.

SOFTNESS-STIFFNESS TESTER
W. & L. E. Gurley
Testing Machines, Inc.
Thwing-Albert Instrument Co.

SOLUBLE OILS
American Cyanamid Company, Industrial Chemicals Division
General Dyestuffs Corp.
Nopco Chemical Co.

SPECIAL MACHINERY
Dilts Machine Works
Downingtown Mfg. Co.
Egan, Frank W., & Co.
Jackson & Church Co.
Manchester Machine Co.
Paper Converting Machine Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Waldron, John, Corp

SPEED REDUCERS
Dodge Manufacturing Corp.
Downingtown Mfg. Co.
Link Belt Co.
Westinghouse Elec. Corp.

SPLICING TISSUE
Williams-Gray Co.

STAINLESS STEEL
Armco Steel Corp.
Crucible Steel Co.
U. S. Steel Corp.

STARCH
Clinton Foods, Inc.
Corn Products Sales Co.
The Hubinger Co.
National Starch Products, Inc.

STEAM JET EJECTORS
Elliott Company, Inc.

STEAM JOINTS
The Moore & White Co.
Rice Barton Corporation
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

STEAM SPECIALTIES
Babcock & Wilcox Co.
Johnson Corp.

STEEL
Armco Steel Corp.
Carnegie Illinois Steel Co.
Crucible Steel Co.
Lukens Steel Company
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works
U. S. Steel Corp.

STEEL, CLAD
Babcock & Wilcox Co.
Lukens Steel Company

STEEL TANKS
Chicago Bridge & Iron Co.
Jackson & Church Co.
The Sandy Hill Iron & Brass Works

STOKERS
Westinghouse Elec. Corp.

STRAINER SCREENS
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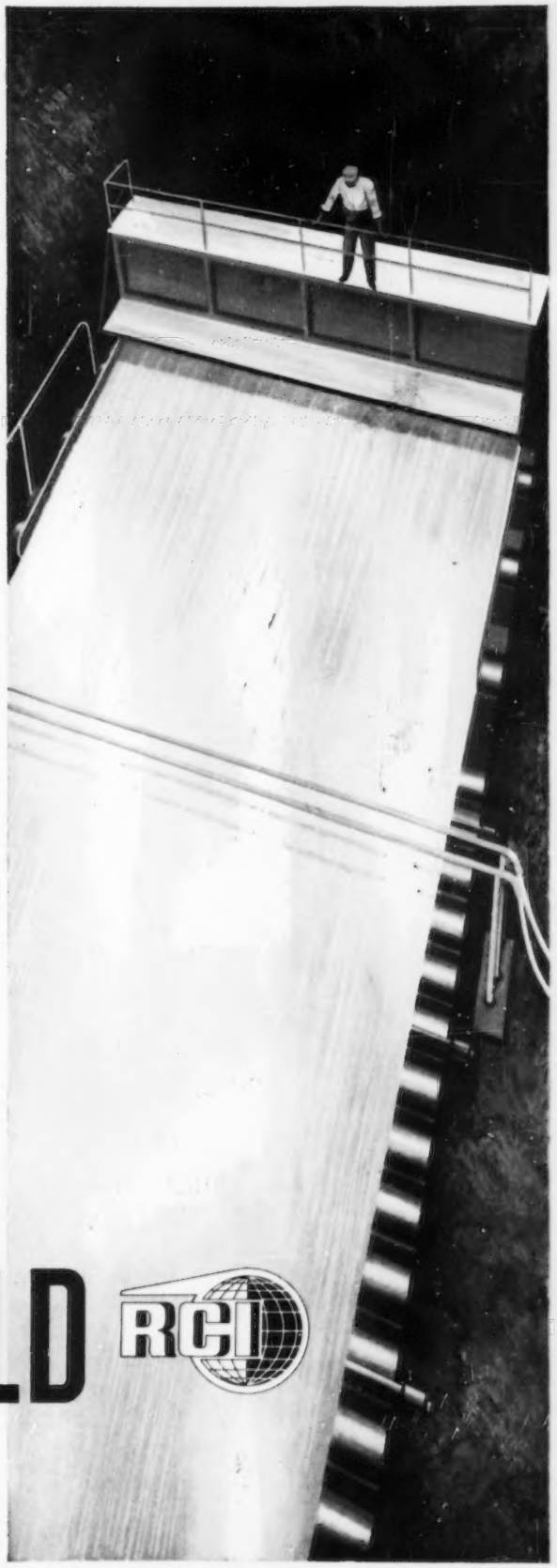

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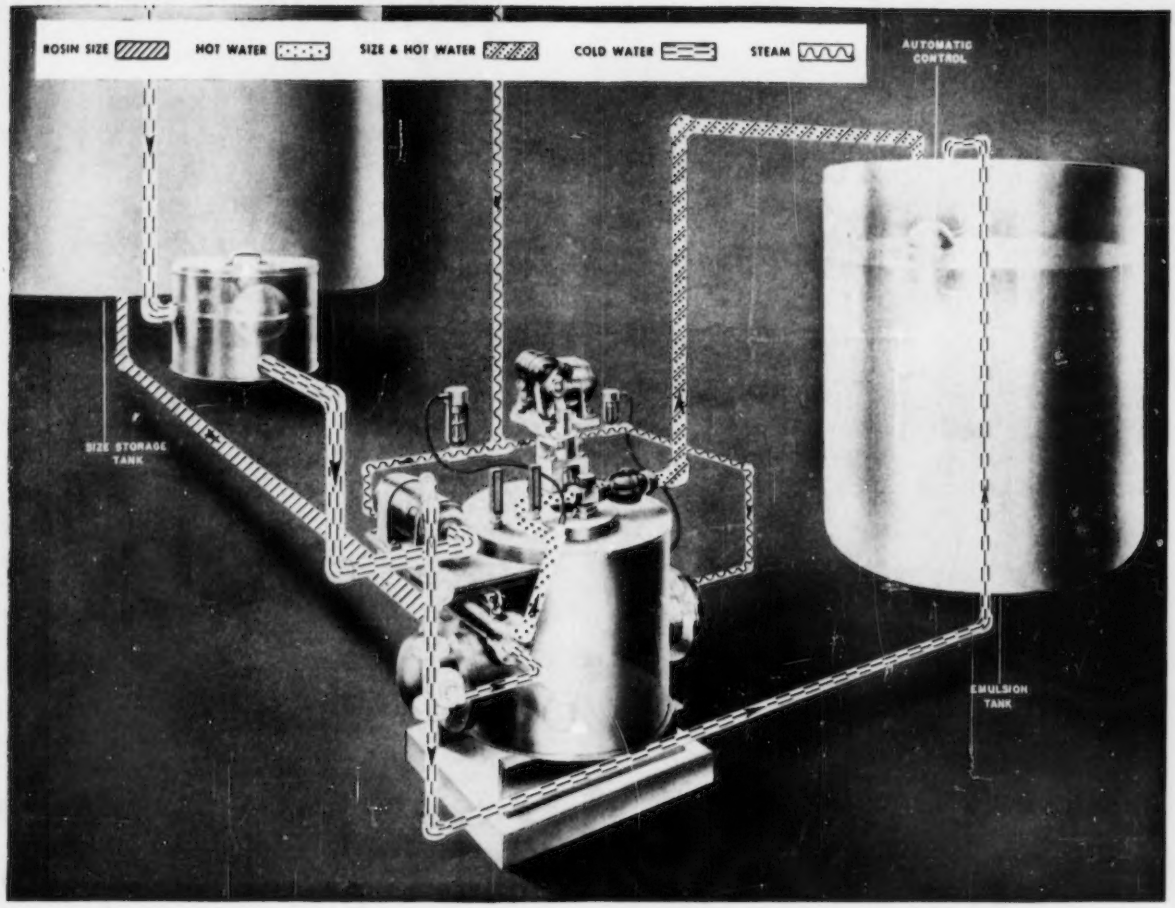

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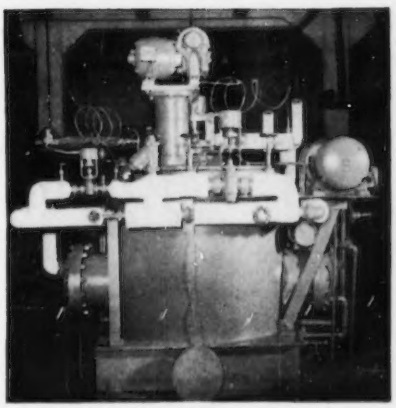

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